NOTICE OF PREPARATION
DRAFT ENVIRONMENTAL IMPACT REPORT

CEQA LEAD AGENCY:

Rebecca Deming
Community Development Director
City of Beaumont
550 East 6th Street
Beaumont CA, 92223

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF BEAUMONT GENERAL PLAN UPDATE (BEAUMONT 2040 PLAN)

AGENCIES: The City of Beaumont is publishing this Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) for the City of Beaumont General Plan Update (Beaumont 2040 Plan, proposed Project) in accordance with the requirements of the California Environmental Quality Act (CEQA). In accordance with CEQA Guidelines Section 15082, the City of Beaumont (City) has determined that an EIR is the appropriate environmental document for the Project.

The NOP is being circulated to obtain the views of you or your agency or organization as to the scope and content of the environmental information that is germane to your agency or organization's statutory responsibilities or interests in connection with the proposed Project. If applicable, an agency may need to use the EIR prepared by the City when considering issuance of a permit or other approval for the Project. Information gathered during the NOP comment period will be used to shape and focus future analysis of environmental impacts.

ORGANIZATIONS AND INTERESTED PARTIES: The City of Beaumont requests your comments regarding the proposed scope and content of the environmental information to be included in the EIR.

PROJECT TITLE: Beaumont General Plan Update (Beaumont 2040 Plan)

NOP COMMENT PERIOD:

Pursuant to CEQA Guidelines Section 15082(b), the City invites you to submit written comments describing your specific environmental concerns, and if representing a public agency, please identify your specific areas of statutory responsibility if applicable. Please send your NOP response or responses to Rebecca Deming at the address shown above. We will need the name, address, and contact information in your correspondence. If you have any questions, please contact Rebecca Deming at (951) 572-3229 or via email at rdeming@ci.beaumont.ca.us.

A copy of the NOP is available for public review at the Lead Agency, and an electronic copy of the NOP will be made available on the City's website: www.Beaumont-Ca.gov. Interested individuals and organizations are also invited to submit written comments on the scope of the EIR. Written comments are desired at the earliest possible date, but due to the time limits mandated by State law, your response must be sent no later than 30 days after receipt of this notice. The NOP public comment period begins March 9, 2018 and ends on April 9, 2018.

SCOPING MEETING: The City will hold a Public Scoping Meeting on Tuesday, March 13, 2018 at 6:00 PM at the Beaumont Civic Center at 550 East 6th Street Beaumont, CA 92223. The Public Scoping Meeting will include a brief presentation introducing the Project and the CEQA process. The General Plan Update land use plan that will be presented at the Scoping Meeting is available on the City's website: www.Beaumont-Ca.gov. The balance of the meeting will be for the purpose of receiving comments from the public and agencies concerning topics to be analyzed in the EIR.

PROJECT LOCATION AND SETTING

The City and City's sphere of influence (SOI) (collectively referred to as the "Planning Area") is located in the northwestern portion of Riverside County (County), and is bounded by the City of Calimesa to the northwest, unincorporated areas of the County to the west, unincorporated County areas (e.g., Cherry Valley) to the north, unincorporated County areas and the City of San Jacinto to the south, and by the City of Banning to the east. The Planning Area encompasses approximately 41.51 square miles (26,566 acres). Major transportation routes through the Planning Area include Interstate 10 (I-10), State Route 60 (SR-60), and State Route 79 (SR-79) (Figure 1, Regional Map).

The Planning Area includes land within the existing City of Beaumont limits (approximately 19,381 acres) and within the City's SOI which includes unincorporated areas outside the current City limits (approximately,7,185 acres) (Figure 2, Project Vicinity). In preparing the Beaumont 2040 Plan and planning for the future of the City, it will be important to closely coordinate with neighboring jurisdictions and regional agencies in order to plan for sustainable community growth. Land uses within the City's Planning Area may include a combination of undeveloped, developing and developed properties. At this time, the City is not seeking annexation of land within the SOI into its current jurisdiction. However, new development within the SOI is being contemplated as a part of the Beaumont 2040 Plan.

PROJECT DESCRIPTION

The Beaumont 2040 Plan (the proposed Project) is a comprehensive update of the City's General Plan, and provides a vision for the future of Beaumont over the next 20 to 30 years.

The General Plan functions as a guide to the type of community that Beaumont citizens desire, and provides the means by which that desired future can be achieved. The General Plan addresses a range of immediate, mid-, and long-term issues with which the community is concerned. The General Plan is intended to allow land use and policy determinations to be made within a comprehensive framework that incorporates public health, safety, and "quality of life" considerations in a manner that recognizes resource limitations and the fragility of the community's natural environment. Under State law, the General Plan must serve as the foundation upon which all land use decisions are to be based, and must also be comprehensive, internally consistent, and have a long-term perspective. State law further mandates that the General Plan:

- Identify land use, circulation, environmental, economic, and social goals and policies for the City and its surrounding planning area as they relate to future growth and development;
- Provide a basis for local government decision-making, including decisions on development approvals and exactions;

- Provide citizens the opportunity to participate in the planning and decision-making process of their communities; and
- Inform citizens, developers, decision-makers, and other cities and counties of the ground rules that guide development within a particular community.

According to State law, General Plans are required to cover nine topics: land use, circulation, housing, conservation, open space, noise, air quality, safety and environmental justice. Jurisdictions may include any other topic that is relevant to planning its future. The City has an adopted Housing Element (2013-2021) that is not a part of this Update process. The updated City of Beaumont General Plan will include the rest of the required topics plus economic development, community/urban design, infrastructure and community facilities, resource management, sustainability, and governance.

Beaumont is a community that values its small-town feel, community heritage, and natural setting. The City is committed to encouraging economically sustainable, balanced growth that respects its long history, while meeting infrastructure needs and protecting the environment. Beaumont's community pride and rural mountain setting sets the city apart as a vibrant and healthy community with local access to retail, services, jobs, and recreation. Beaumont 2040's vision for the future focuses on the following guiding values and priorities:

- **Transparent, honest government:** The citizens of Beaumont desire and value a customer-oriented government that adapts to digital technology, improves effectiveness, embraces innovation, and encourages everyone to participate in City government. Local leaders and public employees are accountable to the citizens.
- **Responsible, measured growth:** Beaumont values a good balance of homes, jobs, and retail with access to local urban amenities. Beaumont promotes expanded and enhanced opportunities for employment in the City, while ensuring that population growth does not outpace existing infrastructure capacity.
- **Fiscal responsibility:** Beaumont encourages fiscal transparency, responsible growth and effective management of fiscal revenues. Beaumont promotes policies that create a strong environment for job creation, build a strong tax base, and improve the fiscal performance of City.
- **Small-town atmosphere:** Beaumont values its small-town atmosphere with distinct neighborhoods, historic downtown and connection to the natural environment. Beaumont is an inviting place to live and visit, and a desirable place for families. The citizens have a sense of pride and belonging in their City and close ties with their neighbors. Downtown Beaumont is a vibrant, diverse, active and walkable place in the heart of the City with civic, commercial, entertainment and residential opportunities for all residents in with high-quality streetscape design, community gathering spaces, and buildings that support pedestrian comfort and safety.
- **Quality of life provided by efficient infrastructure:** Beaumont has vibrant neighborhoods that provide retail, entertainment and recreational opportunities within close proximity. Beaumont encourages policies that create a multi-modal transportation network that enhances neighborhood connectivity and provides opportunities for active transportation and complete streets. New pedestrian and bicycle connections and programs will make it easier, more comfortable, and safer for residents, workers, and visitors to meet their daily needs and access regional destinations, and adjacent communities. Beaumont supports the improvement of infrastructure systems that keep pace with development.

- **Health and safety:** Beaumont endorses access to a healthy lifestyle for people of all ages by developing a complete city with a wide range of open space and recreation opportunities and walkable environments that are clean, safe, and kid friendly. Beaumont fosters safe neighborhoods through good community and environmental design policies that promote a mix of uses and active streets.
- **Beautiful environment of the Pass Area:** The citizens of Beaumont value the natural environment of the City and its surroundings. Beaumont promotes policies that encourage access to these resources for all citizens, enhances opportunities for tourism, and stewards these natural resources and habitat areas. A diverse and extensive open space network with parks and trails within the City and to the surrounding Pass Area enhances access for residents and visitors alike.

The Beaumont 2040 Plan identifies major strategies and physical improvements for the City over the next 20 to 30 years. These strategies include revitalizing Sixth Street into a "downtown" for the City, transforming Beaumont Avenue and Sixth Street into mixed use corridors, diversifying housing choices in the City with new affordable and market-rate single family homes and multi-family housing, expanding the jobs base, including development of an employment district and mixed uses along SR-79 in the southern portion of the City. Strategies will also support neighborhood enhancement, connectivity, and sustainable development practices on lands located immediately to the southwest of the City. Transit-oriented development is also contemplated in the area around the potential location of a Metrolink transit station at Pennsylvania Avenue and First Street. To achieve this direction, the City will also need to ensure balanced growth and preservation of the community's history and identity, open space, and development of a multimodal transportation system.

The following actions will also be taken by the City of Beaumont in connection with the General Plan Update and are also considered part of the Project to be analyzed in the forthcoming EIR:

- Adoption and implementation of the General Plan Update (Beaumont 2040 Plan);
- Adoption and implementation of the revised Zoning Code and Zoning Map;
- Adoption and implementation of the Downtown Specific Plan; and
- Adoption and implementation of the Hillside Development Ordinance.

Probable Environmental Effects and EIR Focus

The forthcoming EIR will evaluate potential impacts of the proposed Project on aspects of the physical environment addressed under CEQA. The analysis in the EIR will include the following specific categories of environmental impacts and concerns related to the proposed Project. This information is provided in order to solicit specific feedback or information which your entity requests to be included in the EIR analysis:

Aesthetics: The EIR will address the potential effects on scenic vistas, scenic corridors, visual character, and light and glare.

Agricultural Resources & Forestry Resources: The EIR will address the potential effects on farmland, forest land, and timberland and the loss of land zoned for agricultural use.

Air Quality: An Air Quality Analysis is being prepared for use in the EIR that will describe existing air quality conditions and will evaluate the potential air quality impacts of the General Plan Update consistent with South Coast Air Quality Management District methodology. The EIR will discuss the measures included in the General Plan Update to minimize impacts of criteria air pollutant emissions.

Biological Resources: A Biological Resources Report is being prepared for use in the EIR that will describe the existing biological conditions within the Planning Area, identify the potential impacts of the General Plan Update on vegetation and wildlife, including special status species, and evaluate the likelihood of any significant impacts, including consistency with the Western Riverside County Multiple Species Habitat Conservation Plan.

Cultural and Paleontological Resources: A Cultural Resources Report is being prepared for use in the EIR that will address potential impacts to historic structures, archaeological resources, and paleontological resources.

Geology and Soils: The EIR will assess soil and geologic conditions in the Planning Area and address seismic hazards, including the potential for liquefaction, ground-shaking, and soil erosion.

Greenhouse Gas Emissions: A Greenhouse Gas Emissions (GHG) Analysis is being prepared for use in the EIR that will examine the potential impacts of implementing the General Plan Update relative to GHG emissions and global climate change. The EIR will discuss the measures included in the General Plan Update to minimize impacts of GHG emissions.

Hazards and Hazardous Materials: The EIR will include a description of the potential hazards in the Planning Area and the health and safety effects based on implementation of the General Plan Update.

Hydrology and Water Quality: The EIR will discuss the drainage conditions throughout the Planning Area and the potential for flooding. Water quality impacts and conformance with the Santa Ana and Colorado Regional Water Quality Control Board requirements will be addressed.

Land Use and Planning: The EIR will identify the land uses in the Planning Area and evaluate potential land use constraints created by existing conditions. The compatibility of the General Plan Update with existing and proposed land uses in the Planning Area and consistency with the City policies and plans will be evaluated.

Mineral Resources: The EIR will discuss impacts to mineral resources from implementation of the General Plan Update.

Noise: The EIR will discuss noise impacts from implementation of the General Plan Update, including impacts from area noise sources (e.g., railroads, airports, I-10, SR-60, and SR-79 freeways, etc.). A noise analysis will identify existing settings and noise level scenarios associated with implementation of the General Plan Update. The EIR will address potential noise impacts associated with implementation of the General Plan Update on residential land uses and other sensitive receptor land uses. Conformance to the City's noise guidelines will be analyzed.

Population and Housing: The EIR will evaluate the potential for the proposed land uses of the General Plan Update to result in population or housing growth, and will also discuss the potential displacement of housing and people as development occurs.

Public Services: The EIR will identify existing police, fire, schools, parks, and other public services and facilities serving the City, and will quantify the increase in service demands resulting from implementation of the General Plan Update. The availability and adequacy of existing services will be generally analyzed.

Recreation: The EIR will discuss the potential to result in the increase in the use of existing recreational facilities that may result in an accelerated physical deterioration of such facilities.

Transportation and Traffic: The traffic analysis prepared for the General Plan Update and EIR will describe the existing roadway conditions, circulation patterns, and other elements of the transportation system in the Planning Area, including the local streets and intersections and

regional facilities (I-10, SR-60, SR-79 freeways). A transportation modeling analysis is being prepared in order to evaluate full build-out of the General Plan Update on the overall transportation network. The General Plan Update's compliance with adopted policies, plans, and programs supporting alternative modes of transportation will also be discussed.

Tribal Cultural Resources: The EIR will discuss the consultation efforts by the Lead Agency and any Native American Tribes as part of the Assembly Bill 52 (AB 52) and Senate Bill 18 (SB 18) process and include discussions of potential impacts to tribal cultural resources.

Utilities and Service Systems: The EIR will discuss the ability of existing infrastructure in the City, such as sanitary sewer, storm drains, water supply, and solid waste, to serve full buildout of the General Plan Update. The EIR will also discuss the availability of the existing water supply to provide for full buildout of the General Plan Buildout.

Project Alternatives: Identification of potential alternatives to the General Plan Update will be addressed including the "No Project" alternative.

The EIR will identify the degree to which each alternative might reduce one or more of the impacts associated with implementation of the General Plan Update, whether or not the alternative could result in other or increased impacts, the viability of the alternative, and the degree to which the alternative is consistent with the City's goals and objectives.

Cumulative Impact Analysis: The EIR will include a discussion of the potentially significant cumulative impacts of the General Plan Update when considered with other past, present, and reasonably foreseeable future projects in the area.

Other Required Sections: The EIR will also include other information typically required for an EIR. These other sections include the following: 1) Introduction; 2) Project Description; 3) Effects Found Not to be Significant; 4) Environmental Impact Analysis; 5) Growth-Inducing Impacts; 6) Significant Unavoidable Environmental Effects; 7) Significant Irreversible Changes; 8) Consistency with Regional Plans; 9) Discussion and Analysis of Energy Conservation based on Appendix F of the CEQA Guidelines; 10) Mitigation Measures; 11) References; and 12) List of Preparers.

Relevant technical reports will be provided as EIR appendices. The environmental analysis for the proposed Project will be completed through the preparation of technical studies and through support of existing reports and studies on the environmental conditions of the Project area.

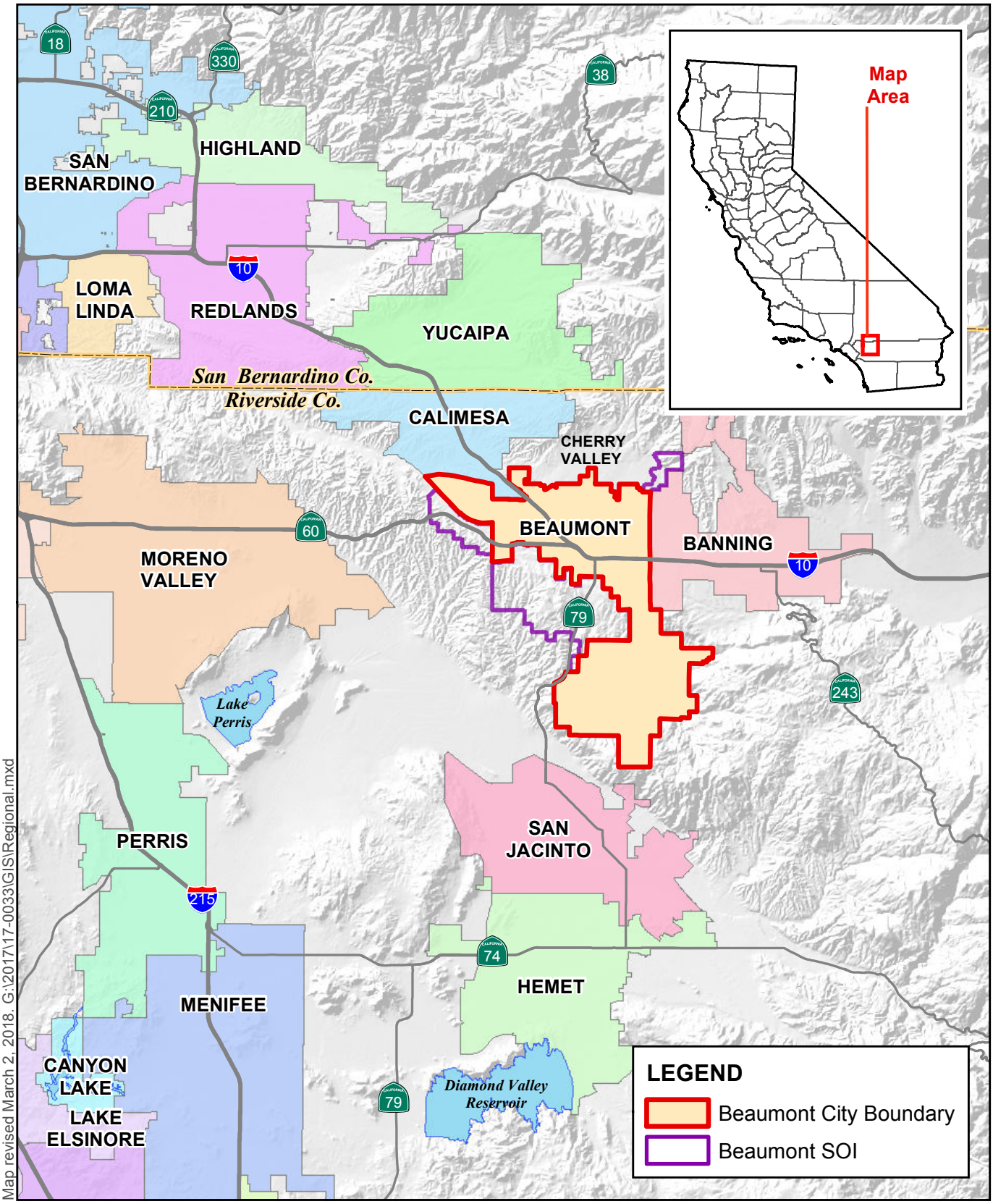
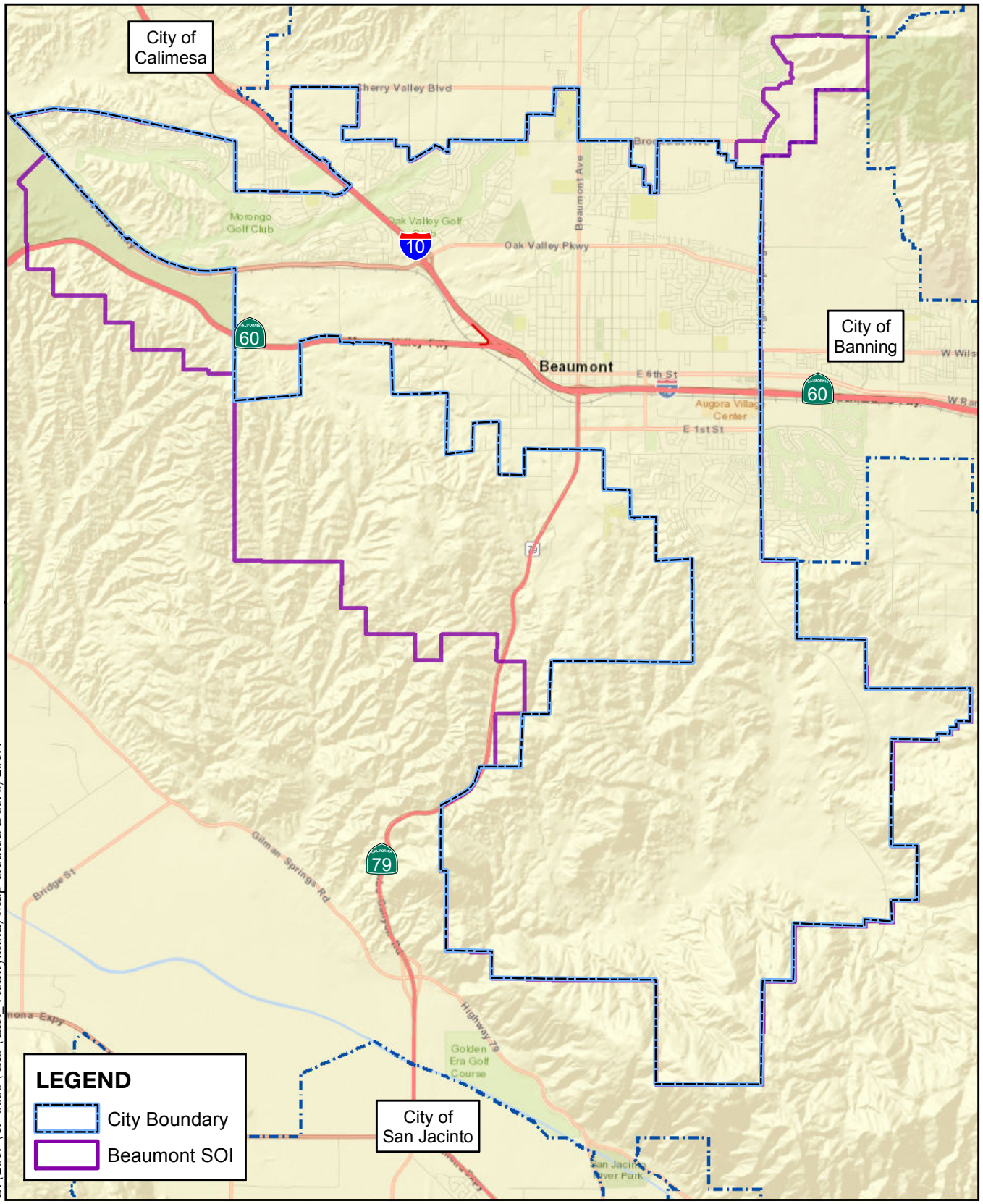


Figure 1 - Regional Map

Beaumont General Plan Update

ALBERT A. WEBB ASSOCIATES



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Sources: City of Beaumont, 2018;
Riverside Co. GIS, 2018.

0 1 2 3 Miles

Figure 2 - Vicinity Map

Beaumont General Plan Update

ALBERT A. WEBB ASSOCIATES

NOP Comment Letters

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710

Edmund G. Brown Jr., Governor

March 14, 2018

Rebecca Deming
City of Beaumont
550 East Sixth Street
Beaumont, CA 92223

Sent via e-mail: rdeming@ci.beaumont.ca.us

RE: SCH# 2018031022; Beaumont General Plan Update (Beaumont 2040 Plan) Project, City of Beaumont; Riverside County, California

Dear Ms. Deming:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for Draft Environmental Impact Report for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 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, § 15064 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 with the area of project 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). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf. 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 or a notice of negative declaration or 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 **lead agencies consult with all 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 sections 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 section 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 section 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 section 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 section 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 nonfederally 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 sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 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 section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

    This process should be documented in the Cultural Resources section of your environmental document.

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 section 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 sections 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 (http://ohp.parks.ca.gov/?page_id=1068) 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 been 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, section 15064.5(f) (CEQA Guidelines section 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 section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 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.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

cc: State Clearinghouse

From: Fossum, Larry (TRBL) [mailto:lfossum@aguacaliente.net]
Sent: Thursday, March 15, 2018 10:35 AM
To: Rebecca Deming
Subject: City of Beaumont Notice of Preparation of a Draft EIR, Beaumont 2040 Plan

Dear Rebecca:

A records check of the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office's cultural registry revealed that this project is not located within the Tribe's Traditional Use Area. Therefore, we defer to other tribes in the area. This letter shall conclude our consultation efforts.

Cordially,

Larry Fossum
On behalf of
Patricia Garcia-Plotkin
Director of Historic Preservation

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DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING (MS 722)
464 WEST 4th STREET, 6th Floor
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-5936
TTY (909) 383-6300
www.dot.ca.gov/dist8

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CITY OF BEAUMONT

Make Conservation A California Way of.

March 22, 2018

City of Beaumont
Rebecca Deming
550 East Sixth Street
Beaumont, CA 92223

Beaumont General Plan Update (Beaumont 2040 Update) SCH# 2018031022

Ms. Deming,

Thank you for the opportunity to review and comment on the Beaumont General Plan Update (Beaumont 2040 Plan) draft Environmental Impact Report. The General Plan addresses a range of immediate; both mid and long term issues that affect the community. The update is for several elements of the General Plan: Land Use, Conservation/Open Space, Public Health, Safety and Circulation and a number of other issues. We have completed the review of the initial study of the environmental review for the City's General Plan and we request consideration of the following comments.

The Department of Transportation (Department) is a responsible agency on this project and we have the following comments:

- Link streets systems that are designed to balance auto, pedestrian and bicycle movement. Street systems should be linked for continuous travel and designed for all modes of transportation. Consider amending circulation Element to allow for Class IV Separated bike lanes wherever possible on Arterials, Collectors and Couplets.
- Encourage mixed-use development near transit services.
- Connect open space, parks and trails into a connective system.
- Plan for mixed-density, mixed-income housing, senior citizen housing, and student housing.
- Promote choices for transportation modes.
- Consider increasing allowable residential density in Downtown Mixed-Use (DMX) up to 40 du/ac.
- Address the provision of SB 1000 planning for Healthy Communities.
- Consider increasing allowable residential density in Urban Village (UV) up to 40 du/ac.
- Provisions for noise mitigation measures along railroad tracks in residential areas. https://transplanning.onramp.dot.ca.gov/smart-mobility-framework https://transplanning.onramp.dot.ca.gov/ctp-2040

Multimodal transportation networks that allow people to walk or bicycle as a viable transportation can promote an active lifestyle as opposed to driving. These active transportation modes increases, physical activity rates. Reducing the amount that people drive by increasing the opportunity for walking, bicycling and transit also reduces vehicle emissions

Please continue to keep us informed of this project and any future developments, which could potentially impact the State Transportation Facilities. If you have any questions or need to contact us, please do not hesitate to call me at (909) 383-4557.

Sincerely,

MARK ROBERTS, AICP
Office Chief
Intergovernmental Review, Community and Regional Planning

RIVERSIDE COUNTY
DEPARTMENT OF
WASTE RESOURCES
Hans W. Kernkamp, General Manager-Chief Engineer

March 26, 2018

Ms. Rebecca Deming
Community Development Director
City of Beaumont
550 East 6th Street
Beaumont CA, 92223

RE: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Beaumont General Plan Update

Dear Ms. Deming:

The Riverside County Department of Waste Resources (RCDWR) has reviewed the NOP addressing a DEIR for the City of Beaumont (City) General Plan Update (Project). The RCDWR offers the following comments for your consideration while preparing the Project's DEIR.

1. Build-out of the Project may have the potential to increase the amount of waste that could adversely affect solid waste facilities. To assess waste impacts, the DEIR should include the projected maximum amount of waste generated from build-out of the Project, using appropriate waste generation factors for the proposed General Plan land uses.

   Note- CalRecycle's website may be helpful to determine the Project's waste generation: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

2. The following information can be useful in the analysis of the solid waste impacts:

   a) Solid waste generated within the Project area is collected by Waste Management Inc. (WMI), with the bulk of recyclable waste and green waste delivered to the Moreno Valley Solid Waste Recycling and Transfer Facility (MVTS) for processing. The MVTS is located at 17700 Indian Street in Moreno Valley. It is permitted for a 2,500-tpd operation.

   b) While the Lamb Canyon Landfill is the closest landfill to Project site, the City's waste hauler could also use the Badlands Landfill and the El Sobrante Landfill for disposal of the City's residual waste. Descriptions of the local landfills are provided below:

      Lamb Canyon Landfill

      The Lamb Canyon Landfill is located between the City of Beaumont and City of San Jacinto at 16411 Lamb Canyon Road (State Route 79), south of Interstate 10 and north of Highway 74. The landfill is owned and operated by Riverside County. The landfill property encompasses approximately 1,189 acres, of which 580.5 acres encompass the current landfill permit area. Of the 580.5-acre landfill permit area, approximately 144.6 acres are permitted for waste disposal. The landfill is currently permitted to receive 5,000

tpd of MSW for disposal and has an estimated total disposal capacity of approximately 20.7 million tons. As of January 1, 2018 (beginning of day), the landfill has a total remaining capacity of approximately 9.9 million tons. The current landfill remaining disposal capacity is estimated to last, at a minimum, until approximately 2029. From January 2017 to December 2017, the Lamb Canyon Landfill accepted a daily average of 1,878 tons with a period total of approximately 576,439 tons. Landfill expansion potential exists at the Lamb Canyon Landfill site.

Badlands Landfill

The Badlands Landfill is located northeast of the City of Moreno Valley at 31125 Ironwood Avenue and accessed from State Highway 60 at Theodore Avenue. The landfill is owned and operated by Riverside County. The existing landfill encompasses 1,168.3 acres, with a total permitted disturbance area of 278 acres, of which 150 acres are permitted for refuse disposal. The landfill is currently permitted to receive 4,500 tpd of MSW for disposal and has an estimated total capacity of approximately 20.5 million tons. As of January 1, 2018 (beginning of day), the landfill had a total remaining disposal capacity of approximately 6.9 million tons. The current landfill remaining disposal capacity estimated to last, at a minimum, until approximately 2022. From January 2017 to December 2017, the Badlands Landfill accepted a daily average of 2,758 tons with a period total of approximately 846,769 tons. Landfill expansion potential exists at the Badlands Landfill site.

El Sobrante Landfill

The El Sobrante Landfill is located east of Interstate 15 and Temescal Canyon Road to the south of the City of Corona and Cajalco Road at 10910 Dawson Canyon Road. The landfill is owned and operated by USA Waste of California, a subsidiary of Waste Management, Inc., and encompasses 1,322 acres, of which 645 acres are permitted for landfill operation. The El Sobrante Landfill has a total disposal capacity of approximately 209.9 million cubic yards and can receive up to 70,000 tons per week (tpw) of refuse. USA Waste must allot at least 28,000 tpw for County refuse. The landfill's permit allows a maximum of 16,054 tons per day (tpd) of waste to be accepted into the landfill, due to the limits on vehicle trips. If needed, 5,000 tpd must be reserved for County waste, leaving the maximum commitment of Non-County waste at 11,054 tpd. As of January 1, 2017, the landfill had a remaining in-County disposal capacity of approximately 56.4 million tons. In 2016, the El Sobrante Landfill accepted a total of 852,987 tons of waste generated within Riverside County. The daily average for in-County waste was 2,760 tons during 2016. The landfill is expected to reach capacity in approximately 2060.

3. Note that the closed Beaumont Landfill is located within the City, north of 4th St., between Distribution Way and Nicholas Rd. While the landfill is inactive, RCDWR actively monitors the landfill's environmental control systems, as well as performs site inspections. In addition, the Lamb Canyon landfill, a regional disposal facility, is adjacent to the southwestern portion of the City's sphere of influence (SOI). Please consider land-use incompatibility issues and development constraints when preparing the General Plan update.

4. Additionally, you may wish to consider incorporating the following measures to help reduce the Project's anticipated solid waste impacts and enhance the City's efforts to comply with the State's mandate of 50% solid waste diversion from landfilling:

- The use of mulch and/or compost in the development and maintenance of landscaped areas within the project boundaries is recommended. Recycle green waste through either onsite composting of grass, i.e., leaving the grass clippings on the lawn, or sending separated green waste to a composting facility.

- Consider xeriscaping and the use of drought tolerant low maintenance vegetation in all landscaped areas of the project.

- Hazardous materials are not accepted at the Riverside County landfills. Any hazardous wastes, including paint, used during construction must be properly disposed of at a licensed facility in accordance with local, state and federal regulations. For further information regarding the determination, transport, and disposal of hazardous waste, please contact the Riverside County Department of Health, Environmental Protection and Oversight Division, at 1.888.722.4234.

- AB 341 focuses on increased commercial waste recycling as a method to reduce greenhouse gas (GHG) emissions. The regulation requires businesses and organizations that generate four or more cubic yards of waste per week and multifamily units of 5 or more, to recycle. A business shall take at least one of the following actions in order to reuse, recycle, compost, or otherwise divert commercial solid waste from disposal:

  - Source separate recyclable and/or compostable material from solid waste and donate or self-haul the material to recycling facilities.

  - Subscribe to a recycling service with waste hauler.

  - Provide recycling service to tenants (if commercial or multi-family complex).

  - Demonstrate compliance with requirements of California Code of Regulations Title 14.

    For more information, please visit:
    http://www.rcwaste.org/business/recycling/mcr

- AB 1826 requires businesses that generate 8 cubic yards or more of organic waste per week to arrange for organic waste recycling services. The threshold amount of organic waste generated requiring compliance by businesses is reduced in subsequent years. Businesses subject to AB 1826 shall take at least one of the following actions in order to divert organic waste from disposal:

  - Source separate organic material from all other recyclables and donate or self-haul to a permitted organic waste processing facility.

  - Enter into a contract or work agreement with gardening or landscaping service provider or refuse hauler to ensure the waste generated from those services meet the requirements of AB 1826.

Thank you for allowing us the opportunity to comment on the NOP. We would appreciate a copy of the Draft EIS/EIR on CD for review and comment when available. Please continue to include the RCDWR in future transmittals. Please call me at (951) 486-3200 if you have any questions regarding the above comments.

Sincerely,

Jose Merlan
Urban/Regional Planner III

PD# 222216

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA USPS AND E-MAIL: April 4, 2018
rdeming@ci.beaumount.ca.us
Rebecca Deming, Community Development Director
City of Beaumont
550 East 6th Street
Beaumont, CA 92223

Notice of Preparation of a Draft Environmental Impact Report for the City of Beaumont General Plan Update (Beaumont 2040 Plan)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. SCAQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Draft Environmental Impact Report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the Draft EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include emission calculation spreadsheets and modeling input and output files (not PDF files)[1]. Without all files and supporting documentation, SCAQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. SCAQMD staff recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analyses. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. More recent guidance developed since this Handbook was published is also available on SCAQMD's website at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). SCAQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

On March 3, 2017, the SCAQMD's Governing Board adopted the 2016 Air Quality Management Plan (2016 AQMP), which was later approved by the California Air Resources Board of Directors on March

[1] Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

23rd. The 2016 AQMP[2] is a regional blueprint for achieving air quality standards and healthful air in the South Coast Air Basin. Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and the challenges facing the South Coast Air Basin. The most significant air quality challenge in the Basin is to achieve an additional 45 percent reduction in nitrogen oxide (NOx) emissions in 2023 and an additional 55 percent NOx reduction beyond 2031 levels for ozone attainment. The 2016 AQMP is available on SCAQMD's website at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

SCAQMD staff recognizes that there are many factors Lead Agencies must consider when making local planning and land use decisions. To facilitate stronger collaboration between Lead Agencies and the SCAQMD to reduce community exposure to source-specific and cumulative air pollution impacts, the SCAQMD adopted the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning in 2005. This Guidance Document provides suggested policies that local governments can use in their General Plans or through local planning to prevent or reduce potential air pollution impacts and protect public health. SCAQMD staff recommends that the Lead Agency review this Guidance Document as a tool when making local planning and land use decisions. This Guidance Document is available on SCAQMD's website at: http://www.aqmd.gov/home/library/documents-support-material/planning-guidance/guidance-document. Additional guidance on siting incompatible land uses (such as placing homes near freeways or other polluting sources) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: http://www.arb.ca.gov/ch/handbook.pdf. Guidance[3] on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

The SCAQMD has also developed both regional and localized significance thresholds. SCAQMD staff requests that the Lead Agency compare the emission results to the recommended regional significance thresholds found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

When specific development is reasonably foreseeable as result of the goals, policies, guidelines, and features in the Proposed Project, the Lead Agency should identify any potential adverse air quality impacts and sources of air pollution that could occur using its best efforts to find out and a good-faith effort at full disclosure in the Draft EIR. The degree of specificity will correspond to the degree of specificity involved in the underlying activity which is described in the Draft EIR (CEQA Guidelines Section 15146). When quantifying air quality emissions, emissions from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis. Furthermore, for phased projects where there will be an overlap between construction and operation, emissions from the overlap

[2] South Coast Air Quality Management District. March 3, 2017. *2016 Air Quality Management Plan*. Available at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

[3] In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's Air Quality and Land Use Handbook: A Community Health Perspective. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: https://www.arb.ca.gov/ch/landuse.htm.

construction and operational activities should be combined and compared those emissions to SCAQMD's regional air quality *operational* thresholds to determine the level of significance.

In addition to analyzing regional air quality impacts, SCAQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by SCAQMD staff or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

In the event that the Proposed Project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying possible mitigation measures for the Proposed Project, including:

- Chapter 11 of the SCAQMD *CEQA Air Quality Handbook*
- SCAQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies
- SCAQMD's Rule 403 – Fugitive Dust, the Implementation Handbook for controlling construction-related emissions, and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- SCAG's MMRP for the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy available here: http://scagrtpscs.net/Documents/2016/peir/final/2016fPEIR_ExhibitB_MMRP.pdf
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

Alternatives

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a "no project" alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the Draft EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

In the event that the Proposed Project requires a permit from SCAQMD, SCAQMD should be identified as a Responsible Agency for the Proposed Project in the Draft EIR. For more information on permits, please visit the SCAQMD webpage at: http://www.aqmd.gov/home/permits. Questions on permits can be directed to the SCAQMD's Engineering and Permitting staff at (909) 396-3385.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's webpage (http://www.aqmd.gov).

SCAQMD staff is available to work with the Lead Agency to ensure that project air quality impacts are accurately evaluated and any significant impacts are mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov or call me at (909) 396-3308.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
RVC180309-05
Control Number

COUNTY OF RIVERSIDE
TRANSPORTATION AND LAND MANAGEMENT AGENCY
Transportation Department

Patricia Romo, P.E.
Director of Transportation

Mojahed Salama, P.E.
Deputy for Transportation/Capital Projects
Richard Lantis, P.L.S.
Deputy for Transportation/Planning and Development

April 5, 2018

Rebecca Deming
Community Development Director
City of Beaumont
550 East 6th Street
Beaumont, CA, 92223

RE: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF BEAUMONT GENERAL PLAN UPDATE (BEAUMONT 2040)

Dear Ms. Deming:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the City of Beaumont General Plan update (Beaumont 2040).

The Riverside County Transportation Department (County) requests the City to coordinate changes to its Circulation Element with County Transportation and Planning Departments to address inter-jurisdictional roadway connections and classification transitions. If found, the County requests to meet with the City to coordinate and resolve any inconsistencies between the County's and City's proposed Circulation Element prior to the approval of the Beaumont General Plan Update.

Thank you again for the opportunity to review the NOP. We look forward to receiving the Draft EIR for the project. Please contact me at (951) 955-2016 with questions or comments.

Sincerely,

for Russell Williams
Development Review Manager

RUW:KKT/TT

cc: Juan C. Perez, Director of Transportation and Land Management

4080 Lemon Street, 8th Floor · Riverside, CA 92501 · (951) 955-6740
P.O. Box 1090 · Riverside, CA 92502-1090 · FAX (951) 955-3198

Patricia Romo, Director of Transportation
Richard Lantis, Deputy Director of Transportation

4080 Lemon Street, 8th Floor · Riverside, CA 92501 · (951) 955-6740
P.O. Box 1090 · Riverside, CA 92502-1090 · FAX (951) 955-3198

MORONGO BAND OF MISSION INDIANS
TRIBAL HISTORIC PRESERVATION OFFICE
12700 PUMARRA RD BANNING, CA 92220
OFFICE 951-755-5025 FAX 951-572-6004

April 6, 2018

TO: **Rebecca Deming**
Community Development Director
City of Beaumont

FROM: **Ray Huaute**
Tribal Historic Preservation Officer
Morongo Band of Mission Indians

RE: Notice of Preparation Draft Environmental Impact Report, City of Beaumont General Plan Update (Beaumont 2040 Plan)

Dear Ms. Deming,

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Draft Environmental Impact Report (EIR) for the City of Beaumont General Plan Update. The following addresses the scope of the EIR and specific environmental concerns as requested in the NOP. As the NOP notes, it is important for the City to coordinate with neighboring jurisdictions to plan for sustainable community growth.

Scope of the EIR
The NOP states that the City is preparing a Cultural Resources Report for use in the EIR to address potential impacts on archaeological and other historic resources. The proposed scope and methods of the report should be made available to Morongo in advance to comment on to better help avoid or minimize specific and cumulative impacts to tribal cultural resources. The report, for example, should include sensitivity zones of cultural resources developed in coordination with interested tribal governments. The report also should include data on the loss of cultural resources within the Planning Area from initial adoption of the current General Plan to the present time.
The NOP also states that the EIR will discuss the city's consultation efforts with tribal governments under Assembly Bill 52 (AB 52) and Senate Bill (SB 18) and include discussion of possible impacts to tribal cultural resources. The City should make clear that potential zoning changes resulting in the granting of conditional use permits or other land-use decisions stemming from the General Plan Update still must be addressed separately under the AB 52 government-to-government consultation process. SB 18 for plan updates and amendments and AB 52 for specific projects have different requirements.

Specific Environmental Concerns
The NOP notes that the City is not seeking to annex land within the Sphere of Influence (SOI) into its boundaries at this time. The SOI is part of the Planning Area of the General Plan update, and new development within areas of the SOI is being contemplated according to the NOP. Specifically, these include areas with recorded and unrecorded tribal cultural resources. For example, zoning changes to allow larger-scale developments could have impacts on sensitive areas along Highways 60 and 79.
The Cultural Resources Report and eventual EIR must identity these impacts in these areas, as well as the rest of the Planning Area, to provide a basis for local government decision-making and address ways

to avoid or limit potential harm to tribal cultural resources. These documents also should address visual and other impacts on cultural resources outside of rezoned areas if new development has potential to harm the significance and integrity of these resources outside the rezoned areas.

Respectfully,

Raymond Huaute
Cultural Resource Specialist
Morongo Band of Mission Indians
Email: rhuaute@morongo-nsn.gov
Phone: (951) 755-5025

April 9, 2018

To: Rebecca Deming
Community Development Director
City of Beaumont 550 East 6th Street Beaumont CA, 92223

From: Ron Roy

35161 Hogan Dr.

Beaumont, Ca. 92223

Re: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF BEAUMONT GENERAL PLAN UPDATE (BEAUMONT 2040 PLAN)

Dear Ms. Deming:

Please note my comments below are based, in part, on the cities:

March 6, 2018:

CITY OF BEAUMONT GENERAL PLAN UPDATE
Land Use Designations Map

I oppose the above stated General Plan (GPU) for the following reasons:

BUILDING HEIGHTS:

To protect existing open spaces and rural designations requires concentrating development to historic and existing centers such as

Beaumont Ave North of I10, 6th Street (W&E), Historic Railroad District, and 2nd Street Marketplace area (including nearby centers such as Albertsons neighborhood shopping

Ron Roy: Beaumont GPU 2050 Plan Comment Letter

center[former Kmart], Walmart, Home Depot, Kohl's), and existing developments in the area bounded by I10 North, Highland Springs2 Rd. East, First Street South, and Beaumont Ave. West. One way to do this is to allow for multi-story building heights.

Beaumont should draw from the experiences of other cities. For Palm Springs, Newport Beach, and other Southern California Cities allows up to 6 stories (sometimes more) while still protecting their views. Planning is done in consideration of the surrounding Mountain or

Coastal Views. Beaumont has similar view considerations with the Pass Area mountain vistas and views of the Palomar Mountains in San Diego Counties and Santiago Peak in Orange County. If the buildings are set back properly from the main thoroughfares and major streets referenced above, the city should consider allowing for heights of at-least 6 stories as long asthe designs protect views and are vetted by the community.

UNNECESSARY AREAS:

Beaumont has numerous existing commercial/retail areas that are woefully underdeveloped. A goal of the General Plan should be to protect existing open spaces and rural designations and to concentrate development to historic and existing centers such as Beaumont Ave North of I10, 6th Street (W&E), Historic Railroad District, and 2nd Street Marketplace area (including nearby centers such as Albertsons neighborhood shopping center[former Kmart], Walmart, Home Depot, Kohl's), and existing developments in the area bounded by I10 North, Highland Springs Rd. East, First Street South, and Beaumont Ave. West.

One way to do this is to restrict commercial, urban village, industrial, mixed use, land use designations to the above existing and historical areas. The 21st century advent of online shopping already tests the viability and convenience of bricks-and-morter stores and centers. Adding additional commercial/industrial/retail areas unnecessarily disperses these uses and competes with existing areas, which will thwart and stunt build outs for the existing areas.

Ron Roy: Beaumont GPU 2050 Plan Comment Letter

Therefore the general plan should eliminate the following:

- Urban Village overlay: bounded by Oak Valley Parkway to the north, Potrero Blvd. to the west, SR60 to the South, and SR60/I10 interchange to the east.
- Urban Village overlay: bounded by Hwy79/Beaumont Ave to the West, future Potrero Blvd to the North. Seneca Springs housing to the
- East, and raw land near Beaumont's southern sphere of influence to the south.
- The sole roughly triangular shaped, "Employment District" in South Beaumont (south of I10) west of Hwy 79/Beaumont Ave. south of Westward Ave (approx)The indicated employment uses (for market-supported light industrial, research and development, creative office and maker space type uses, retail, service and other supportive uses) should be located in other Non-Residential Designations already in existence in the city.

CONCENTRATE DEVELOPMENT IN EXISTING NON RESIDENTIAL AND MIXED USE DESIGNATIONS

Proposed NC, GC, ED, DMX, UV, should be located in existing areas (primarily dark blue, red, and pink (DMX) areas designated in the March 6th 2018 GP map).

This creates a number of advantages. Many of the businesses located in areas such as industrially zoned, not only produce, assemble or wholesale products, but also are open to the public.

I fear these businesses will go-under because there's not enough foot traffic near their businesses (think of the small businesses around Historic Railroad District, or in the area roughly south of and abutting I10 between Hwy79(Beaumont Ave) and Pennsylvania Ave and First Street to the south). By locating commercial, office uses in these existing "dark blue", "dark red", "pink" areas will bring workers and consumers into these areas and, thereby more traffic and more sales. These smaller businesses do not have the regional/national brand that allow them to compete in the online-retail

universe. So additional foot traffic, locally generated sales are critical to their survival.

Also need to revise industrial zone designations to require retail outlets for all warehouses (Example: Wolverine: should have at least 5000 sq.ft. of retail space at their warehouse).

This thoughtful concentration of uses creates a smaller carbon footprint, sustainable infrastructure, and is in keeping with governmental climate change, GHG goals and regulations.

TOD OVERLAY;

This overlay shows much promise, and should be considered as a critical new focal point for the community. Emphasis should be placed on design features that draw attention to regional/ national/ international travelers on Metrolink or Amtrak Trains and local and regional transit (RTA, Sunline, Pass Transit, etc). By also locating retail/non residential uses here could also bring more traffic and revenues to the nearby surrounding areas that about and/or are near I10.

However, the city has not gone far enough here. Beaumont needs to create and designate a transit center, transit hub and put it on the GP map. Beaumont should draw from the experiences and designs of recently completed transit centers such as the San Bernardino Transit Center, and the ARTIC transit center in Anaheim.

Here also the GPU needs to designate and include alternative energy refueling stations throughout the city. Perhaps a “alternative energy circulation map” could display a comprehensive look as to how this infrastructure would work throughout the city.

It appears that vacant land next to Pennsylvania Ave. (south of I10, north of First St) may be a good location for this designation. However, in addition to this site, Beaumont should consider a second transit center near the intersection of Oak Valley Parkway/Desert Lawn Dr. to support regional rail/ bus commuters.

Ron Roy: Beaumont GPU 2050 Plan Comment Letter

Beaumont also needs to come up with a design that facilitates access to Beaumonts “mixed village” area along 6th street.

PUBLIC TRANSIT/ACTIVE TRANSIT (BIKES, PEDESTRIAN, EQUESTRIAN)

The GPU update has failed to include a Circulation Element and corresponding maps, that indicate where public transit, and active transit can safely circulate throughout the city. These modes of transportation should be clearly indicated in a separate map. Grade 1 bike lanes (Per California DOT) should be the minimum standard. Also Beaumont needs to consider a separated “bikeway” system (that would function similar to car arterial roads), in which a separated paved road network throughout the city dedicated exclusively to bikes is developed. Beaumont should request SB1 funds for this purpose.

The GPU should add more public transit stops/facilities, bike lanes and “bikeway system” , trails in Master Planned Communities such as Oak

Valley Specific Plan that are currently underserved “transit deserts”. More public transit connections from MPCs to regional transit stops should be added (Ex: Beaumont Walmart).

GHG, CLIMATE CHANGE, AQMD REQUIREMENTS

The city of Beaumont has not indicated in sufficient detail how its proposed GPU will mitigate or ameliorate for GHG, Climate Change, or AQMD requirements.

ENDANGERED SPECIES:

An incredibly rare active Least Bells Vireo Nest (the only one within approximately100 square miles) has been confirmed in the Beaumont Sphere of Influence south of SR60. Beaumont’s GPU should designate and allow sufficient open space to protect this site from encroachment by development or other potentially catastrophic impacts. The GPU also needs to designate and protect the Stephens Kangaroo Rat, the Potrero Preserve and other protections under Riverside County’s MHSCP.

Ron Roy: Beaumont GPU 2050 Plan Comment Letter

WATERSHED/CREEKS

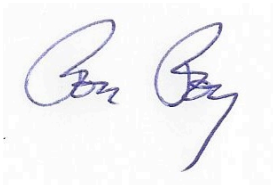
The GPU needs to include a map and designations that protect Beaumont Area watersheds and creeks.

BEAUMONTS MASTER PLAN OF TRAILS

The city’s Master Plan Of Trails should be included in the GPU as a separate map with appropriate designations.

Thank you for considering my objections and recommendations.

Sincerely



Ron Roy

Beaumont Resident.

State of California - Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
(909) 484-0459
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

April 9, 2018
Sent via email

Rebecca Deming
Community Development Director
City of Beaumont
550 East 6th Street
Beaumont, CA 92223
rdeming@ci.beaumont.ca.us

Subject: Notice of Preparation of a Draft Environmental Impact Report
City of Beaumont General Plan Update (Beaumont 2040 Plan)
State Clearinghouse No. 2018031022

Dear Ms. Deming:

The Department of Fish and Wildlife (Department) appreciates the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Beaumont General Plan Update (project) [State Clearinghouse No.2018031022]. The Department is responding to the NOP as a Trustee Agency for fish and wildlife resources (California Fish and Game Code Sections 711.7 and 1802, and the California Environmental Quality Act [CEQA] Guidelines Section 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 *et seq.*) and/or a California Endangered Species Act (CESA) Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (California Fish and Game Code Sections 2080 and 2080.1).

The project encompasses a comprehensive update to the City of Beaumont's (City) General Plan that provides a vision for the future of the City over the next 20 to 30 years. The General Plan identifies the land use, circulation, environmental, economic, and social goals and policies for the City and its surrounding planning area as they relate to future growth and development.

COMMENTS AND RECOMMENDATIONS

The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species (i.e., biological resources); and administers the Natural

Community Conservation Planning Program (NCCP Program). The Department offers the comments and recommendations presented below to assist the City (the CEQA lead agency) in adequately identifying and/or mitigating the project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable the Department to adequately review and comment on the proposed project with respect to impacts on biological resources.

The Department recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable Department staff to adequately review and comment on the project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats.

The Department recommends that the DEIR specifically include:

1. An assessment of the various habitat types located within the project footprint, and a map that identifies the location of each habitat type. The Department recommends that floristic, alliance- and/or association based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the project. The Department's California Natural Diversity Database (CNDDB) in Sacramento should be contacted at (916) 322-2493 or CNDDB@wildlife.ca.gov to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the proposed project. The Department recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data

   Please note that the Department's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. The Department recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the project site.

3. A complete, *recent* inventory of rare, threatened, endangered, and other sensitive species located within the project footprint and within offsite areas with the potential to be effected, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service, where necessary. Note that the Department generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed project may warrant periodic updated surveys for certain sensitive taxa, particularly if the project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

4. A thorough, recent, floristic-based assessment of special status plants and natural communities, following the Department's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see https://www.wildlife.ca.gov/Conservation/Plants);

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]).

6. A full accounting of all mitigation/conservation lands within and adjacent to the project.

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources as a result of the project. To ensure that project impacts to biological resources are fully analyzed, the following information should be included in the DEIR:

1. A discussion of potential impacts from lighting, noise, human activity, defensible space, and wildlife-human interactions created by zoning of development projects or other project activities adjacent to natural areas, exotic and/or invasive species, and drainage. The latter subject should address project-related changes on drainage patterns and water quality within, upstream, and downstream of the project site, including: volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

With respect to defensible space: please ensure that the DEIR fully describes and identifies the location, acreage, and composition of defensible space *within* all proposed development priority areas. Please ensure that any graphics and descriptions of defensible space associated with this project comply with Riverside County Fire/City of Beaumont Fire (or other applicable agency) regulations/ requirements. The City, through their planning processes, should be ensuring that defensible space is provided and accounted for *within proposed development areas*, and not transferred to adjacent open space or conservation lands, such as the Potrero Unit of the San Jacinto Wildlife Area. Please note that lands proposed to be managed for defensible space purposes will have lower conservation resource value as they require in-perpetuity vegetation management.

2. A discussion of potential indirect project impacts on biological resources, including resources in areas adjacent to the project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or conservation/mitigation lands (e.g., preserved lands associated with a Natural Community Conservation Plan, or other conserved lands).

3. An evaluation of impacts to adjacent open space lands from both the construction of the project, long-term operational and maintenance needs, and long-term impacts from recreational activities.

4. A cumulative effects analysis developed as described under CEQA Guidelines § 15130. Please include all potential direct and indirect project related impacts to riparian areas, wetlands, vernal pools, alluvial fan habitats, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and other sensitive habitats, open lands, open space, and adjacent natural habitats in the cumulative effects analysis. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Alternatives Analysis

Note that the DEIR must describe and analyze a range of reasonable alternatives to the project that are potentially feasible, would "feasibly attain most of the basic objectives of the project," and would avoid or substantially lessen any of the project's significant effects (CEQA Guidelines § 15126.6[a]).

Mitigation Measures for Project Impacts to Biological Resources

The DEIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the

project. When proposing measures to avoid, minimize, or mitigate impacts, the Department recommends consideration of the following:

1. *Fully Protected Species*: Fully protected species may not be taken or possessed at any time. Project activities described in the DEIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the project area. The Department also recommends that the DEIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. The Department recommends that the Lead Agency include in the analysis how appropriate avoidance, minimization, and mitigation measures will reduce indirect impacts to fully protected species.

2. *Sensitive Plant Communities*: The Department considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts.

3. *Mitigation*: The Department considers adverse project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

   If sensitive species and/or their habitat may be impacted from the project, the Department recommends that the City include specific mitigation in the DEIR. CEQA Guidelines §15126.4, subdivision (a)(1)(8) states that formulation of feasible mitigation measures should not be deferred until some future date. The Court of Appeal in *San Joaquin Raptor Rescue Center* v. *County* of *Merced* (2007) 149 Cal.App.4th 645 struck down mitigation measures which required formulating

management plans developed in consultation with State and Federal wildlife agencies after Project approval. Courts have also repeatedly not supported conclusions that impacts are mitigable when essential studies, and therefore impact assessments, are incomplete *(Sundstrom* v. *County* of *Mendocino* (1988) 202 Cal. App. 3d. 296; *Gentry* v. *City* of *Murrieta (1995)* 36 Cal. App. 4th 1359; *Endangered Habitat League, Inc.* v. *County* of *Orange* (2005) 131 Cal. App. 4th 777).

The Department recommends that the DEIR specify mitigation that is roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). The mitigation should provide long-term conservation value for the suite of species and habitat being impacted by the project. Furthermore, in order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions.

4. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   The Department recommends that local onsite propagules from the project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.

   Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the project; examples could include retention of woody material, logs, snags, rocks, and brush piles.

5. *Nesting Birds and Migratory Bird Treaty Act:* Please note that it is the project proponent's responsibility to comply with all applicable laws related to nesting birds

and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). In addition, sections 3503, 3503.5, and 3513 of the Fish and Game Code (FGC) also afford protective measures as follows: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by FGC or any regulation made pursuant thereto; Section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by FGC or any regulation adopted pursuant thereto; and Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

The Department recommends that the DEIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: project phasing and timing, monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the project site. If pre-construction surveys are proposed in the DEIR, the Department recommends that they be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

6. *Moving out of Harm's Way:* The proposed project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the Department recommends that the lead agency condition the DEIR to require that a Department-approved qualified biologist be retained to be onsite prior to and during all ground- and habitat-disturbing activities to move out of harm's way special status species or other wildlife of low or limited mobility that would otherwise be injured or killed from project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety (i.e., the Department does not recommend relocation to other areas). Furthermore, it should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

7. *Translocation of Species*: The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species as studies have shown that these efforts are experimental in nature and largely unsuccessful.

California Endangered Species Act

The Department is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to the California Endangered Species Act (CESA). The Department recommends that a CESA Incidental Take Permit (ITP) be obtained if the project has the potential to result in "take" (California Fish and Game Code Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the project. CESA ITPs are issued to conserve, protect, enhance, and restore State-listed CESA species and their habitats.

The Department encourages early consultation, as significant modification to the proposed project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. Please note that the proposed avoidance, minimization, and mitigation measures must be sufficient for the Department to conclude that the project's impacts are fully mitigated and the measures, when taken in aggregate, must meet the full mitigation standard. Revisions to the California Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA ITP unless the Project CEQA document addresses all Project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit.

Western Riverside County Multiple Species Habitat Conservation Plan

Within the Inland Deserts Region, the Department issued Natural Community Conservation Plan Approval and Take Authorization for the Western Riverside County MSHCP per Section 2800, *et seq.*, of the California Fish and Game Code on June 22, 2004. The MSHCP establishes a multiple species conservation program to minimize and mitigate habitat loss and provides for the incidental take of covered species in association with activities covered under the permit.

Compliance with approved habitat plans, such as the MSHCP, is discussed in CEQA. Specifically, Section 15125(d) of the CEQA Guidelines requires that the CEQA document discuss any inconsistencies between a proposed Project and applicable general plans and regional plans, including habitat conservation plans and natural community conservation plans. An assessment of the impacts to the MSHCP as a result of this project is necessary to address CEQA requirements. To obtain additional information regarding the MSHCP please go to: http://rctlma.org/epd/WR-MSHCP.

The proposed project occurs within the MSHCP area and is subject to the provisions and policies of the MSHCP. In order to be considered a covered activity, Permittees must demonstrate that proposed actions are consistent with the MSHCP and its associated Implementing Agreement. The City of Beaumont is the Lead Agency and is signatory to the Implementing Agreement of the MSHCP. The project is located in The Pass and San Jacinto Valley Area Plans, and includes multiple MSHCP Criteria Cells. If

future proposed projects are located within MSHCP Criteria Cells, these projects will be subject to the Joint Project Review (JPR) process through Western Riverside County Regional Conservation Authority. In addition, projects may be subject to any or all of the following MSHCP policies and procedures: the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP section 6.1.2), Protection of Narrow Endemic Plant Species (MSHCP section 6.1.3), Additional Survey Needs and Procedures (MSHCP section 6.3.2), and the Guidelines Pertaining to the Urban/Wildlands Interface (MSHCP section 6.1.4).

The DEIR needs to address how the proposed project will affect the policies and procedures of the MSHCP. Therefore, all surveys required by the MSHCP policies and procedures listed above to determine consistency with the MSHCP should be conducted and results included in the DEIR so that the Department can adequately assess whether the project will impact the MSHCP.

Lake and Streambed Alteration Program

Fish and Game Code section 1602 requires an entity to notify the Department prior to commencing any activity that may do one or more of the following: Substantially divert or obstruct the natural flow of any river, stream or lake; Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or Deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

Upon receipt of a complete notification, the Department determines if the proposed project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify your project that would eliminate or reduce harmful impacts to fish and wildlife resources.

The Department's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if necessary, the DEIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with the Department is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to https://www.wildlife.ca.gov/Conservation/LSA/Forms.

Additional Comments and Recommendations

To ameliorate the water demands of this project, the Department recommends incorporation of water-wise concepts in project landscape design plans. In particular, the Department recommends xeriscaping with locally native California species, and installing water-efficient and targeted irrigation systems (such as drip irrigation). Local water agencies/districts, and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species, and some facilities display drought-tolerant locally native species demonstration gardens. Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website: http://saveourwater.com/

Further Coordination

The Department appreciates the opportunity to comment on the NOP of a DEIR for the City of Beaumont General Plan Update project (SCH No. 2018031022). The Department recommends that the City of Beaumont address the comments and concerns outlined in this letter in the forthcoming DEIR. If you have any questions pertaining to the comments provided in this letter, or wish to schedule a meeting and/or site visit, please contact James Sheridan, Environmental Scientist at (760) 200-9419 or at james.sheridan@wildlife.ca.gov.

Sincerely,

For Scott Wilson
Environmental Program Manager

Literature Cited

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

wittwer / parkin

April 9, 2018

Via Email

Rebecca Deming
Community Development Director
City of Beaumont
550 East 6th St.
Beaumont, CA 92223
rdeming@ci.beaumont.ca.us

Re: Beaumont General Plan Update (Beaumont 2040 Plan)

Dear Ms. Deming:

This law firm represents the Southwest Regional Council of Carpenters (Southwest Carpenters) and submits this letter on the above-referenced project on its behalf.

Southwest Carpenters represents 50,000 union carpenters in six states, including in Southern California, and has a strong interest in the environmental impacts of projects designed to increase development, such as the Beaumont General Plan Update (Project). The City of Beaumont (City) issued a Notice of Preparation signaling the City's intent to prepare a Draft Environmental Impact Report (DEIR) for the Project on March 9, 2018.

The Project will affect land uses permitted within the City (19,381 acres) and its sphere influence (7,185 acres), comprising 41.51 square miles. The Project includes the following actions:

- Adoption and implementation of the General Plan Update (Beaumont 2040 Plan);
- Adoption and implementation of the revised Zoning Code and Zoning Map;
- Adoption and implementation of the Downtown Specific Plan; and
- Adoption and implementation of the Hillside Development Ordinance.

Of particular note, the City's proposed Land Use Designations Map and Hillside Development Ordinance indicate that much of the City's future development will occur on currently undeveloped hillsides.

The comments presented herein should not be interpreted as being exhaustive by any means, but are preliminary concerns based on the Notice of Preparation. Southwest Carpenters look forward to reviewing the DEIR and its full discussion of environmental impacts, alternatives, and mitigation.

1. Agricultural Impacts

According to the California Department of Conservation Farmland Mapping and Monitoring Program, the City is almost entirely surrounded by Farmland of Local Importance. Farmland of Local Importance is defined as including "soils that would be classified as prime [farmland] and [farmland of statewide importance] but lack available irrigation water," "lands producing major crops for Riverside County but that are not listed as unique crops." and "lands identified by city or county ordinance as agricultural zones or contracts."

In the DEIR, please identify exactly which types of Farmland of Local Importance surround the City. Furthermore, the DEIR must describe impacts to this farmland and provide for all possible mitigation. It is noted that a majority of this farmland within the City's sphere of influence is slated for development by 2040, and it does not initially appear as though the City has proposed avoidance or any other form of mitigation for the loss of this farmland.

2. Air Quality

The City lies within the Southern California Air Basin. This air basin had been found in constant violation of 8-hour ozone (extreme) and PM 2.5 (moderate to serious). The Southern California Air Quality Management District (SCAQMD) has produced an Air Quality Management Plan (AQMP), designed to reduce criteria pollutant emissions to less hazardous, and then attainment, levels.

The General Plan update envisions economic and population growth that would develop almost all land within its sphere of influence by 2040. This development will place much of the proposed future residential uses further away from businesses and public services. This will result in greater commute distances and more vehicle miles traveled by future residents. The DEIR must evaluate the City's proposed development model for consistency (or inconsistency) with the AQMP. At first glance, the Project will only serve to exacerbate ongoing National Ambient Air Quality Standards for nonattainment criteria pollutants.

3. Biological Resources

The City plans to place over 7,000 acres of new development on currently undeveloped land. New development, consisting almost entirely of residential uses, will primarily occur within the mountainous habitat to the west of the City. This has the potential to limit habitat

connectivity through the construction hundreds to thousands of miles of exclusionary fencing and roads and increase predation of native wildlife by pets.

Mountainous land exists as one of the last vestiges of wildlife habitat and serves as crucial wildlife corridors. The loss and impairment of this habitat will make species dispersal and traversal more difficult, and, at times, impossible. Execution of the Project will have temporary and permanent direct, indirect, and cumulative effects on wildlife. The City should be prepared to fully discuss these wildlife impacts, as well as all proposed mitigation designed to counterbalance these impacts.

The City has noted at least portions of the Project fall within the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP). In the DEIR, the City should discuss whether its proposed mountainside development is consistent with the MSHCP. In addition, considering the size and scope of the Project, it is quite possible that some portions of the Project fall outside of the MSHCP. If this is the case, the City should disclose which areas of the Project are excluded from the MSHCP. The City should provide a separate analysis of these areas of the Project and provide separate mitigation for impacts to these areas.

4. Greenhouse Gas Impacts

The City is required to evaluate the potential of the Project to increase greenhouse gas emissions. Although it is possible the City plans to contain some of its growth as infill, City plans to expand and fully develop all land within its sphere of influence to accommodate population growth. Proposed development within the sphere of influence will include industrial, rural residential, rural ranch, urban village, high-density residential, and employment district.

Buildout of the Project will conflict with state, regional, and local greenhouse gas reduction goals. The City appears not to be focused on population densification within its city limits, and instead, seems determined to expand development into currently undeveloped areas. Buildout of the Project will likely greatly increase building-based greenhouse gas emissions, as well as vehicle-miles traveled. Indirectly and cumulatively, the Project is projected to increase demand for goods to be shipped to commercial centers or delivered to residents' homes. These additional trips, alone, would run counter to state and local greenhouse gas reduction goals.

The City developed a Climate Action Plan in 2014, which focused exclusively on regulating the "building energy sector," or energy consumption in buildings. The City set as its goal a roughly 20% reduction in greenhouse gas emissions from 2012 levels (88,310 metric tons of carbon dioxide-equivalent), or reducing these emissions to 63,583 $MTCO_2e$ by 2020. The 2014 Climate Action Plan only evaluated greenhouse gas emission reductions up to 2020.

As part of the DEIR, the City must describe the City's baseline greenhouse gas emissions. Although the Climate Action Plan only evaluated greenhouse gas emissions from buildings, the City is required to evaluate greenhouse gas emissions from all potential emission sources prior to Project implementation and at full buildout. Furthermore, because the City's Climate Action Plan only extends to 2020, this document will be of little use even for assessing building impacts and mitigation resulting from the implementation of the Project and cannot be relied upon in discussing impacts from any other sources, such as traffic and transportation. In addition, the Project DEIR should also provide an update on the City's progress in attaining the greenhouse gas reduction goals contained in its Climate Action Plan.

The City may wish to consider incorporating a more comprehensive Climate Action Plan in its General Plan as part of the Project. Failure to update the Climate Action Plan would mean the City would have no active Climate Action Plan for Project-related greenhouse gas impacts beyond 2020.

If the City does not adopt an updated Climate Action Plan as part of the Project, the City will be required to exercise extra care when analyzing greenhouse gas-related impacts and carefully disclose how the Project will impact statewide and local goals. The City will need to consider in its analysis:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
(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 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

Center for Biological Diversity v. *Department of Fish & Wildlife* (2015) 62 Cal. 4th 204, 217.

5. Hazards and Hazardous Materials

Most of the expansion proposed within the City's sphere of influence will occur within a Very High Fire Hazard Severity Zone (VHFHSZ), as delineated by CAL FIRE. Buildout of the Project in mountainous areas within a VHFHSZ will have a high potential to increase the fire hazard risk within and surrounding the City.

In addition, the Project proposed additional industrial uses within the VHFHSZ. Industrial uses have a high chance of transporting and storing large volumes of hazardous substances and, thus, releasing these substances into the environment. These risks are heightened where, as here, industrial uses are proposed to be located within or near a VHFHSZ.

6. Parks and Recreation

While the southern portion of the City is designated as open space, the City currently has relatively few parks and outdoor recreational activities available. The City may consider adding parklands and recreational trails to open space and undeveloped lands both currently within the city limits, as well as within its greater sphere of influence. Devoting lands currently slated for development as open space and parks and adding recreational trails may also serve to mitigate some of the impacts from the Project.

7. Public Services

The Project sites large areas of residential uses in the mountains, away from the more densely populated and better serviced city center. Regardless of whether Project mitigation will involve the creation of additional fire, police, and medical staff and facilities, these residential uses will be more expensive, difficult, and time-consuming to serve and more susceptible to limitations on accessibility. The DEIR should disclose potential impacts to services in relation to the siting of thousands of acres of residential development on mountainsides.

8. Transportation and Traffic

The City touts its commitment to transit-oriented development, in line with the mandates of SB 375. However, it is doubtful that development occurring within the City's sphere of influence would be well suited for public transit options, as this development will be lower-density residential, likely accessed by multiple, winding roads. In the DEIR, please discuss where the City plans to focus the majority of its growth, and whether this growth will be located near high-volume transit centers.

9. Utilities

Providing utilities, including electricity, water, sewer, and garbage service, to the Project will be highly demanding, especially considering that much of the development will occur in mountainous terrain.

Water supply in western Riverside County is a constant cumulative-impact concern and is often downplayed or overlooked by cities in an effort to greenlight large volumes of

development, such as the Project. Western Riverside County naturally has scarce water resources, with new development often relying on ever-diminishing and compacting aquifers. The DEIR should provide a full, objective assessment of the Project's water supply, including an assessment of the Project's potential impacts on aquifer health and the potential for the Project to impair access to water during severe drought. The Project should provide heavy mitigation to reduce the Project's impacts on scarce water supplies.

It is unclear whether the City proposes provision of sewer service for hillside development. If the City plans to permit septic systems in these areas, the City must evaluate the potential for the Project to cause seepage of septic into surface and groundwater.

Conclusion

Southwest Carpenters thanks the City for providing an opportunity to comment on the Notice of Preparation. Moving forward, please send all future notices relating to this Project to Nicholas Whipps at nwhipps@wittwerparkin.com. Thank you for your consideration of these comments.

Very truly yours,
WITTWER PARKIN LLP

Nicholas Whipps

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017
T: (213) 236-1800
www.scag.ca.gov

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Curt Hagman, San Bernardino County

April 9, 2018

Ms. Rebecca Deming, Community Development Director
City of Beaumont
550 East 6th Street
Beaumont, California 92223
Phone: (951) 572-3229
E-mail: rdeming@ci.beaumont.ca.us

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the City of Beaumont General Plan Update (Beaumont 2040 Plan) [SCAG NO. IGR9558]

Dear Ms. Deming,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the City of Beaumont General Plan Update (Beaumont 2040 Plan) to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS) pursuant to Senate Bill (SB) 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] SCAG's feedback is intended to assist local jurisdictions and project proponents to implement projects that have the potential to contribute to attainment of Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS) goals and align with RTP/SCS policies.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the City of Beaumont General Plan Update (Beaumont 2040 Plan) in Riverside County. The proposed project includes a General Plan Update for the 2040 horizon year, as well as a revised Zoning Code and Zoning Map, the Downtown Specific Plan, and the Hillside Development Ordinance.

When available, please send environmental documentation to *SCAG's office in Los Angeles or by email to au@scag.ca.gov* providing, at a minimum, the full public comment period for review. Please note our new headquarters in Downtown Los Angeles is at *900 Wilshire Boulevard, Ste. 1700, Los Angeles, California 90017*.

If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Anita Au, Associate Regional Planner, at (213) 236-1874 or au@scag.ca.gov. Thank you.

Sincerely,

Ping Chang
Acting Manager, Compliance and Performance Monitoring

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2016 RTP/SCS for the purpose of determining consistency for CEQA. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a determination of consistency with the 2016 RTP/SCS for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF BEAUMONT GENERAL PLAN UPDATE (BEAUMONT 2040 PLAN) [SCAG NO. IGR95558]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the RTP/SCS.

2016 RTP/SCS GOALS

The SCAG Regional Council adopted the 2016 RTP/SCS in April 2016. The 2016 RTP/SCS seeks to improve mobility, promote sustainability, facilitate economic development and preserve the quality of life for the residents in the region. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health (see http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx). The goals included in the 2016 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2016 RTP/SCS are the following:

SCAG 2016 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and active transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies**
	**SCAG does not yet have an agreed-upon security performance measure.*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG 2016 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* ***Not-Consistent: Statement as to why;*** *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

2016 RTP/SCS STRATEGIES

To achieve the goals of the 2016 RTP/SCS, a wide range of land use and transportation strategies are included in the 2016 RTP/SCS. Technical appendances of the 2016 RTP/SCS provide additional supporting information in detail. To view the 2016 RTP/SCS, please visit: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. The 2016 RTP/SCS builds upon the progress from the 2012 RTP/SCS and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that the SCAG region strives toward a more sustainable region, while the region meets and exceeds in meeting all of applicable statutory requirements pertinent to the 2016 RTP/SCS. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

DEMOGRAPHICS AND GROWTH FORECASTS

Local input plays an important role in developing a reasonable growth forecast for the 2016 RTP/SCS. SCAG used a bottom-up local review and input process and engaged local jurisdictions in establishing the base geographic and socioeconomic projections including population, household and employment. At the time of this letter, the most recently adopted SCAG jurisdictional-level growth forecasts that were developed in accordance with the bottom-up local review and input process consist of the 2020, 2035, and 2040 population, households and employment forecasts. To view them, please visit http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts			Adopted City of Beaumont		
	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040
Population	19,663,000	22,091,000	22,138,800	51,600	78,800	80,600
Households	6,458,000	7,325,000	7,412,300	18,200	26,700	27,200
Employment	8,414,000	9,441,000	9,871,500	11,400	17,200	18,000

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for the 2016 RTP/SCS for guidance, as appropriate. SCAG's Regional Council certified the Final PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on April 7, 2016 (please see: http://scagrtpscs.net/Pages/FINAL2016PEIR.aspx). The Final PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

elevate BEAUMONT 2040

EXISTING CONDITIONS REPORT

CITY OF BEAUMONT | GENERAL PLAN UPDATE

Note: This Existing Conditions Report was prepared in 2016. All information presented in this document is based on best available data from the City in 2016 (unless noted otherwise in the source of a figure or table). Additionally, the Planning Area has changed since completion of the Existing Conditions Report in 2016. The updated General Plan should be consulted for the updated map of the Planning Area.

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1. INTRODUCTION

OVERVIEW

Beaumont is embarking on an exciting journey – the City is taking bold steps to make the General Plan a true, long-range plan that will chart the City's future into the middle of the 21st century. The Existing Conditions Report provides a high-level analysis for important topics such as land use, mobility, conservation, parks and recreation, infrastructure, community character, and quality of life. The report provides background information and documents significant conditions, trends, and key issues. It is intended to document the baseline conditions in the City of Beaumont, while also providing contextual comparisons with neighboring cities and Riverside County, where applicable. Data and information in the document were collected from a variety of sources, including statistical information collected from the U.S. Census, conversations with community leaders, and City staff.

As an initial step in the General Plan Update, this report is intended to stimulate discussion and generate ideas to further the future steps of the planning process. This chapter provides background information, including information about the General Plan, the purpose of the document, description of the planning area, and brief history of the City. This chapter also provides brief chapter summaries to help navigate the existing conditions report. The Existing Conditions Report is intended for use by a range of stakeholders, including City staff, decision-makers, property owners, residents, and community members of Beaumont.

WHAT IS A GENERAL PLAN?

A General Plan is a city policy document required by state law (Government Code Section 65300-65303.4) that provides a "long term, comprehensive, integrated, internally consistent and compatible statement" of goals and policies that reflect local conditions and community vision. The law requires that a General Plan address the following eight mandatory subject areas, or "elements:"

- **Land use.** The land use element identifies the location and intensity of land uses throughout the City.
- **Circulation.** This element plans for the transportation system including roadways, transit, bicycle and pedestrian facilities; it can also address sewer, gas, water, and other infrastructure conveyance systems.
- **Conservation.** This element guides the use and conservation of natural resources such as soils, wildlife, water, energy, and historic resources.
- **Environmental Justice.** This element identifies disadvantaged communities within the City and seeks to promote resident engagement in the process, mitigate unique or compounded health risks, and identify priority improvements and needs.
- **Housing.** The housing element seeks to accommodate housing needs for all incomes, groups with disabilities, and the homeless.
- **Noise.** This element seeks to limit the community's exposure to excessive noise.
- **Open space.** The open space element identifies parks and open space throughout the City.
- **Safety.** The safety element seeks to reduce the risk of death, injuries, property damage, and economic and social dislocation from natural and human-made hazards.

State law also allows for optional "elements" and for elements to be organized or combined at the City's discretion. For example, the City of Beaumont's 2007 General Plan includes an optional Implementation Element. The State requires cities to maintain a regularly updated General Plan to keep pace with changing conditions and community priorities.

PURPOSE OF THE GENERAL PLAN UPDATE

The purpose of the Beaumont General Plan is to serve as the primary legal document that identifies and guides long-term growth, development and decision-making in the City. The process is strongly anchored by residents' input and vision for the City, articulating specific steps to guide land use and planning focused on growth management, community character, circulation, quality of life, economic development, public health and sustainability over the next 20 to 30 years. As such, the Beaumont General Plan will serve to inform residents, developers, decision-makers, and other cities of the ground rules for development within the City.

PLANNING AREA – GENERAL PLAN

GEOGRAPHY AND LOCATION

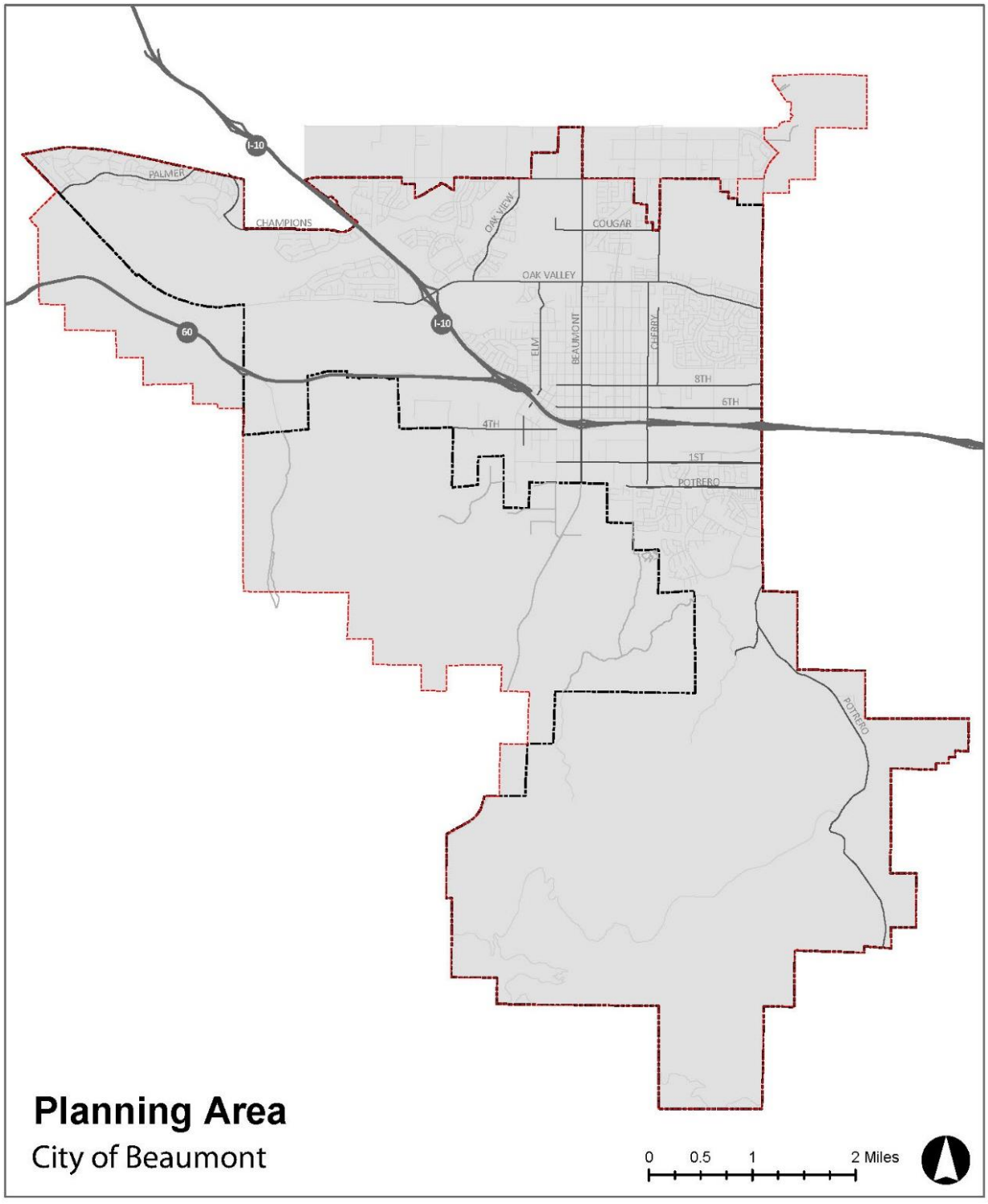
The Planning Area is located in the westernmost portion of Riverside County (County), and is bounded on the west by the City of Calimesa and unincorporated areas, on the north by unincorporated County areas (e.g., Cherry Valley), on the south by unincorporated County areas and the City of San Jacinto, and on the east by the City of Banning. Major transportation routes through the Planning Area include Interstate 10, State Route 60, and State Route 79. According to the United States Census Bureau, the City has a total area of 30.9 square miles (80 square kilometers), of which 99.96% is land and 0.04% is water. The Planning Area has been heavily disturbed by human activity.

The Planning Area is at the peak of the San Gorgonio Pass between San Bernardino and Palm Springs, with an elevation range of approximately 2,500-3,000 feet above sea level (approximately 760 - 915 meters). The Planning Area has a warm-summer Mediterranean climate, with temperatures reaching an average of up to 95 degrees Fahrenheit during the summer and 52 degrees Fahrenheit during the winter. Due to its higher elevation, it is usually 5-10 degrees cooler than its neighboring lower-elevation areas, such as Riverside, Hemet/Perris/San Jacinto, and the Coachella Valley. Snow is rare, and annual precipitation is approximately 17 inches, with most rain occurring between the months of November and April. The City's unique location provides its residents with beautiful rural views, while maintaining close proximity to urban amenities. Beaumont offers its residents a combination of small town charm and suburban lifestyle, alongside abundant recreational opportunities.

UNINCORPORATED COUNTY LAND

The Beaumont Planning Area includes land within the existing city limits and unincorporated areas outside the current city limits. In preparing the General Plan Update and planning for the future of the City, it will be important to closely coordinate with neighboring jurisdictions and regional agencies in order to plan for sustainable community growth. Land uses within the City's Planning Area may include a combination of undeveloped, developing and developed properties. The Sunny-Cal development was approved for incorporation. Aside from this project and its adjacent properties, there is no planned development in areas outside of the City limits nor is the City seeking annexation of parcels outside its current jurisdiction. However, this area has been included in the study area in order to provide additional context for the General Plan development.

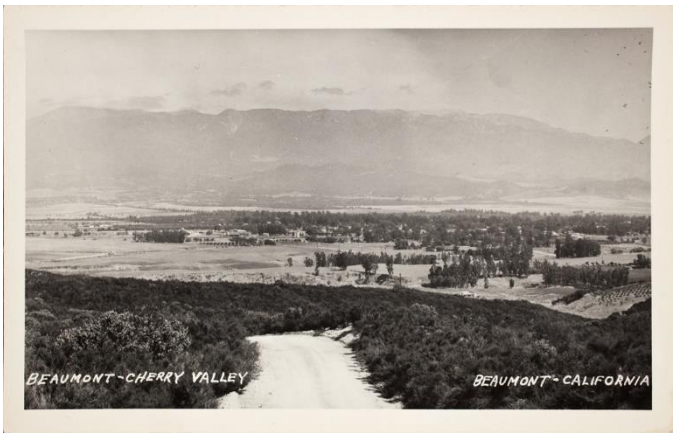
FIGURE 1.1: PLANNING AREA BOUNDARY MAP



OUR CITY

HISTORY

Before the settlement of the white and European settlers, the San Gorgonio Pass was home to the Pass Cahuilla Indians. The Mountain Cahuilla lived in the San Jacinto mountains and the Desert Cahuilla lived in the Coachella Valley. The Cahuilla were hunters and gathered, but also planted crops. Before European contact, the Cahuilla population ranged from 3,600 to as high as 10,000 people. Due to European diseases, such as smallpox, the Cahuilla population was decimated during the 19th century.

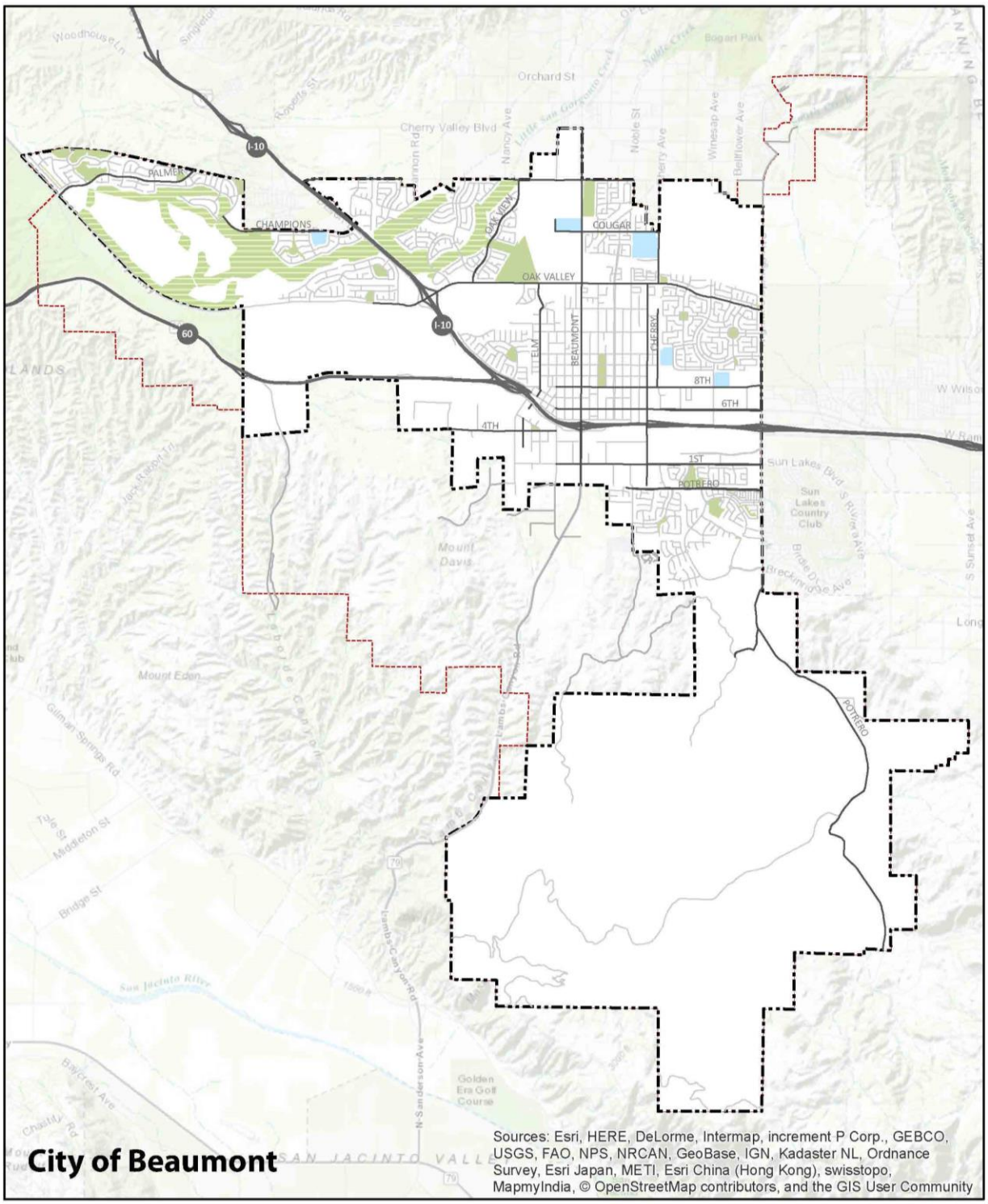


View of Mountains and Developing Town of Beaumont (n.d)
Source: Beaumont Library District

Located at a low point between California's southern mountain ranges, the San Gorgonio Pass first drew the attention of white settlers in the 1850s seeking railway connection to the Pacific Ocean. The Southern Pacific Railroad set tracks in the area that is now Beaumont in the 1860s. In the late 19th century, the area was sparsely populated with a railroad depot and telegraph office in 1875. The first stores were built in 1884, the first school in 1885, and three hotels were constructed by 1887. The town's chief industry during this time was grain agriculture. Population growth was slow and limited until the San Gorgonio Water Company, formed in 1907, developed a reservoir and laid 40 miles of piping to bring water and irrigation to the town. The new water system helped spur the development of new houses and fruit orchards in the north – the population doubled to over 1,100 by 1910.

The city was incorporated in 1912, deriving its name (French for beautiful mountain) from the surrounding picturesque mountains. It soon became well-known for its thriving apple orchards and flourished as a tourist destination. The town's close proximity to Los Angeles, idyllic setting, and affordable housing led to a population boom starting in 2000. A 2008 study by the Public Policy Institute of California noted that Beaumont and its surrounding communities have the highest population growth throughout the Riverside County region. This population explosion has concerned many local residents, who cite increasing student population in schools, rising demand on the water supply, and increasing traffic on the city's road network as key concerns.

FIGURE 1.2: CITY OF BEAUMONT MAP



STRUCTURE OF THE EXISTING CONDITIONS REPORT

CHAPTER 2: OUR COMMUNITY

This chapter provides an overview of the existing demographic and socio-economic characteristics of the City. It uses U.S. Census data, City and County data, and other sources to provide a big picture analysis of the current social context within the City. This chapter also includes information about environmental justice and health conditions in Beaumont, including levels of ozone, chronic disease, and physical activity.

CHAPTER 3: OUR LOCAL MARKET

This chapter summarizes existing trends and projections related to market and economic conditions in the City. It identified types of jobs and employers across the region. A detailed market and economic technical report is found in Technical Appendix A.

CHAPTER 4: OUR CITY

This chapter provides an overview of existing land use and development across the City, identifying twelve Planning Sub-Areas in the City and analyzing general land use patterns, including residential and non-residential uses. It also and provides a summary of development patterns and development opportunity areas in the City. Chapter 4 also include an overview of City structure that identifies the Neighborhood, Commercial, and Downtown cores.

CHAPTER 5: HOW WE GET AROUND

This chapter provides a summary of the existing circulation network and transportation facilities, such as roadways, sidewalks, trails, transit facilities, and bicycle facilities.

CHAPTER 6: OUR COMMUNITY SERVICES

This chapter provides an overview of park, library, and school facilities in the City. The section also discusses solid water, sewage, and waste collection and diversion.

CHAPTER 7: SAFETY

This chapter provides an overview of fire and police services in the City. The section also provides a summary of hazards, such as wildfires and earthquakes. In addition, this chapter summarizes measured noise levels in the City.

CHAPTER 8: OUR NATURAL RESOURCES

This chapter provides an inventory of the existing habitat and special-status species. It also includes an overview of the existing City policies related to biological assets, special status species, and habitat. Chapter 8 also summarizes existing policies and conditions related to air quality, including potential pollution sources.

HOW TO USE THIS EXISTING CONDITIONS REPORT

Each chapter of the Existing Conditions Report is organized with the following sections:

- **Key Findings.** The key findings serve as brief summaries of critical issues in the community and are derived from the analysis in the Existing Conditions Report.
- **Analysis.** Each chapter is divided into sub-sections covering topics pertinent to the General Plan Update. A summary of existing conditions is provided along with an analysis of its importance is presented.
- **Trends and Opportunities.** Each chapter outlines trends and opportunities that should also be considered as part of the General Plan update. These are intended to provide a picture of regional or national trends that will likely impact the City's landscape and urban form over the next 20 years, but may not be prevalent enough to show up as formative existing conditions today.

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2. OUR COMMUNITY

OVERVIEW

The pattern of a growing aging population in the United States is evident in Beaumont, but the City also has a high proportion of youth. These types of demographic transitions will continue to transform land use, population, and services in the City.

As part of the Our General Plan Update process, the Existing Conditions Report provides a snapshot of important demographic patterns and trends in the City. The snapshots summarize data from the 2000 Census, 2010 Census, 5 year estimates from the 2010 and 2015 American Community Survey, and demographics and growth forecasts from the Southern California Association of Government. This chapter includes information on household composition, population, race and ethnicity, housing, education, income, and health.

KEY FINDINGS

The following key findings summarize important takeaways for this Chapter:

- **Population Growth.** SCAG forecasts the population to be 80,600 by 2040, which is a percentage increase of over 118%.
- **Household Income.** The City's median household income has increased by over 118% since 2000. This increase in household income is nearly four times greater than Riverside County.
- **Age.** In terms of age, the City's population of retirees (individuals 60 to 64 years of age) has increased by over 82% since 2000, and its population of adolescents (individuals under 19 years of age) continues to make up nearly one third of the population.
- **Poverty.** Approximately 11.7% of the households earned incomes less than $25,000
- **Educational Attainment.** Generally, Beaumont residents are attaining higher education levels, and those with some college, but no degree has increased by 55%. The percentage of those with a graduate or professional degree has increased by 45%.

ANALYSIS

POPULATION AND HOUSEHOLD CHARACTERISTICS

Beaumont has long been known for its small-town feel, but the population has rapidly grown in the last few decades. The Southern California Association of Governments *2016 Demographics and Growth Forecast* estimates that Beaumont's population will nearly double to 80,600 by the year 2040. Similarly, the number of households is projected to steadily increase. The number of total households tripled in the period between 2000 and 2010. Households are projected to more than double from 11,801 in 2010 to 27,200 by the year 2040.

FIGURE 2.1: POPULATION

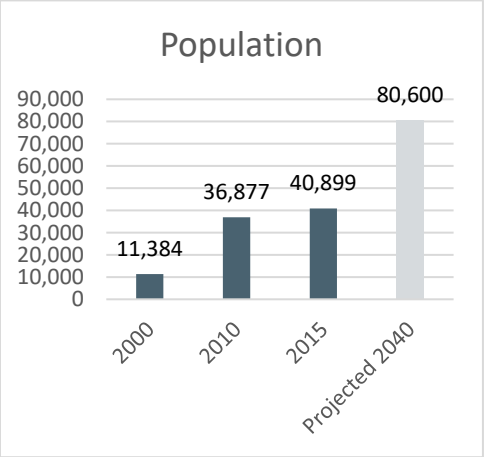


FIGURE 2.2: TOTAL HOUSEHOLDS

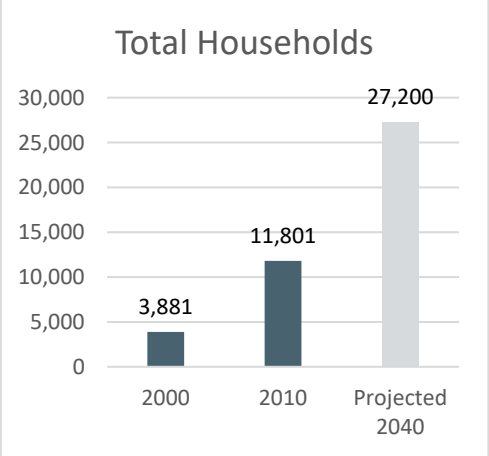
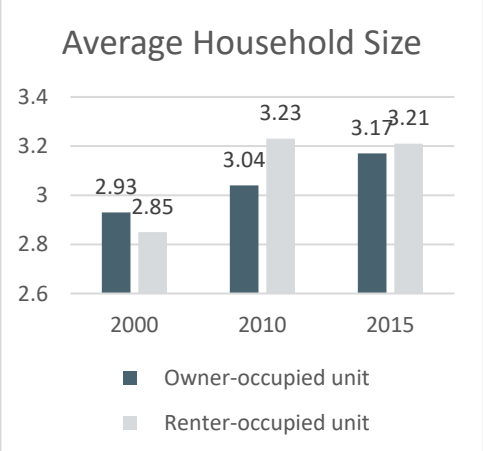


FIGURE 2.3: AVERAGE HOUSEHOLD SIZE



Source: Census 2000, Census 2010, ACS 2011-2015

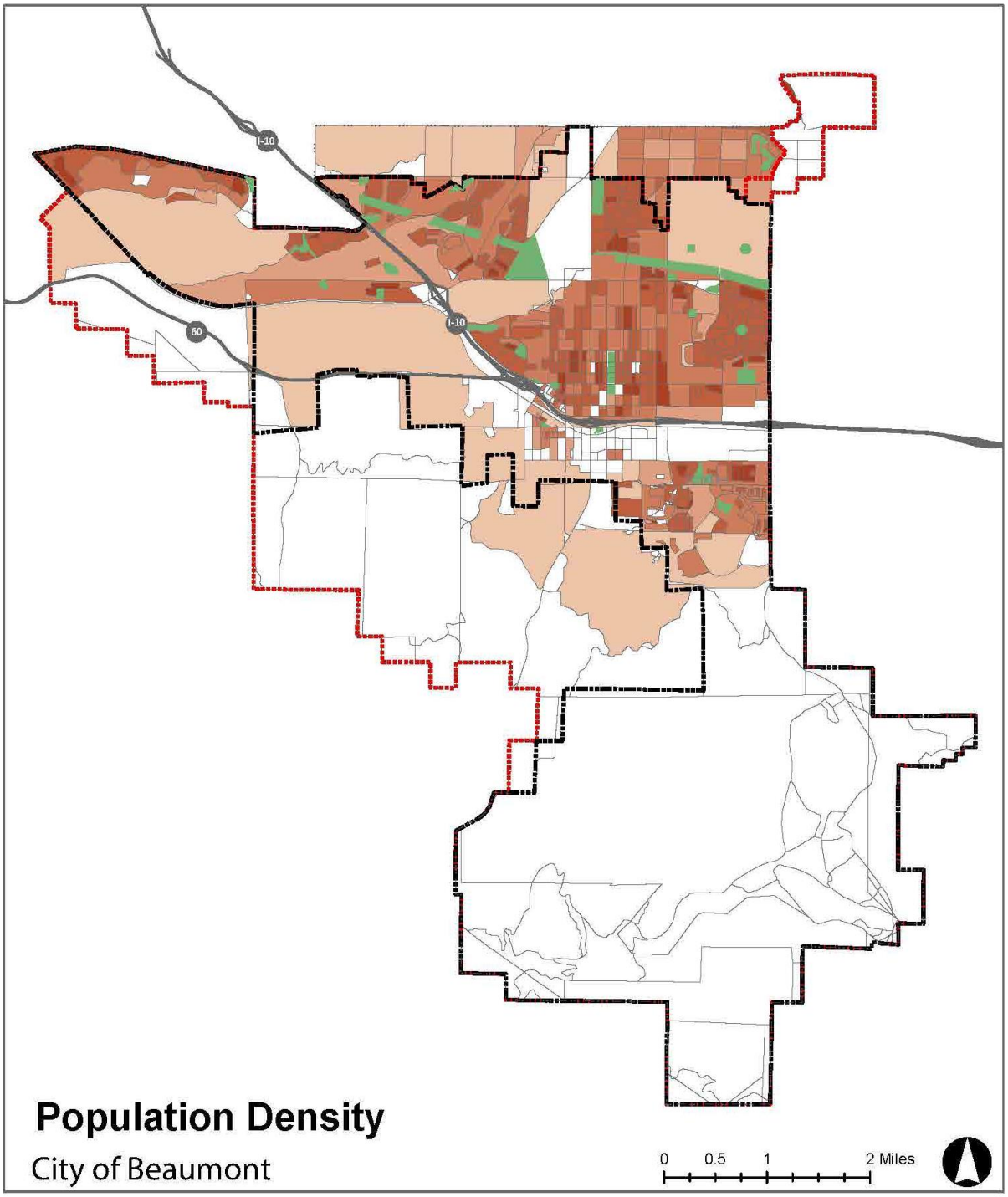
The average household size of both owner-occupied and renter-occupied units in Beaumont has slightly increased from 2000 to 2015. For owner-occupied households, the average increased from 2.93 in 2000 to 3.17 in 2015. For renter-occupied households, the average increased from 2.85 to 3.21 during the same period. The average household size in Riverside County is higher for owner-occupied units (3.20) and renter-occupied units (3.31).

While Beaumont's projected population growth will place significant pressures on existing transportation, public facilities, and utility services, the City is also well positioned to prepare for the future demands of this growth. The City has entitled nearly all of its land, a process of securing pre-construction requirements for future development. As part of these early planning efforts, the City has an opportunity to coordinate land use and transportation efforts to encourage sustainable economic growth.

POPULATION DENSITY

The map below illustrates population density in Beaumont. Population density tends to be fairly homogenous across both older and newer development the City. There are also large areas of largely undeveloped land with very low population density. The pattern is largely due to the high percentage of entitled land in the City, in addition to vacant land and open space within the City's sphere of influence

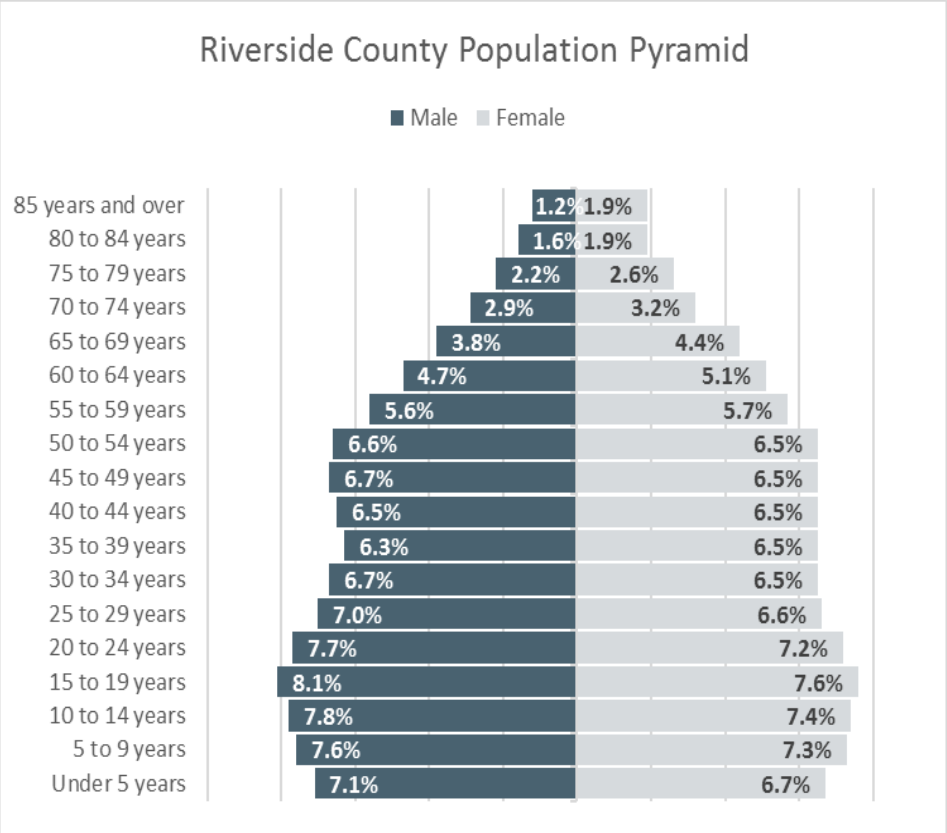
FIGURE 2.4: POPULATION DENSITY MAP



POPULATION PYRAMIDS

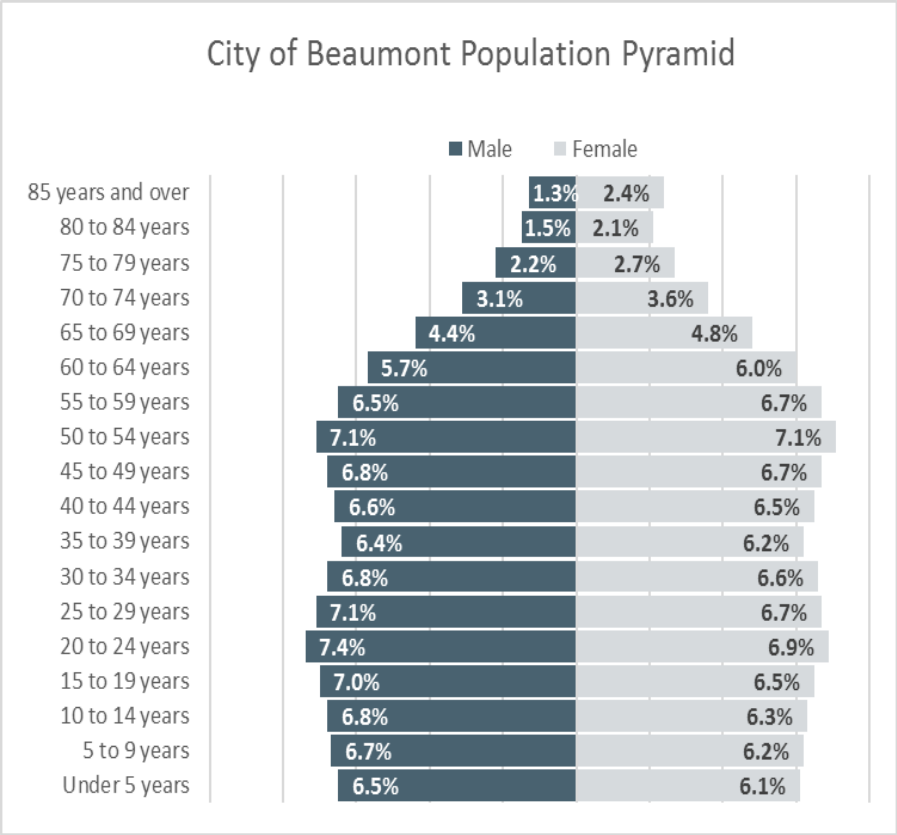
A population pyramid displays the distribution of population for both males and females. In Beaumont, the proportion of females is slightly higher than that of males in both the City (50.7%) and Riverside County (50.2%). The population that lives in Beaumont tends to be older than in Riverside County as a whole. In 2015, just over 22% of the City's population was older than 55, as compared to 23% of the County population. Beaumont also has a similar proportion of residents under the age of 24 (37.7 %) compared to the County (37.3%).

FIGURE 2.5: RIVERSIDE COUNTY POPULATION PYRAMID



Source: Census 2000, ACS 2011-2015

FIGURE 2.6: BEAUMONT POPULATION PYRAMID



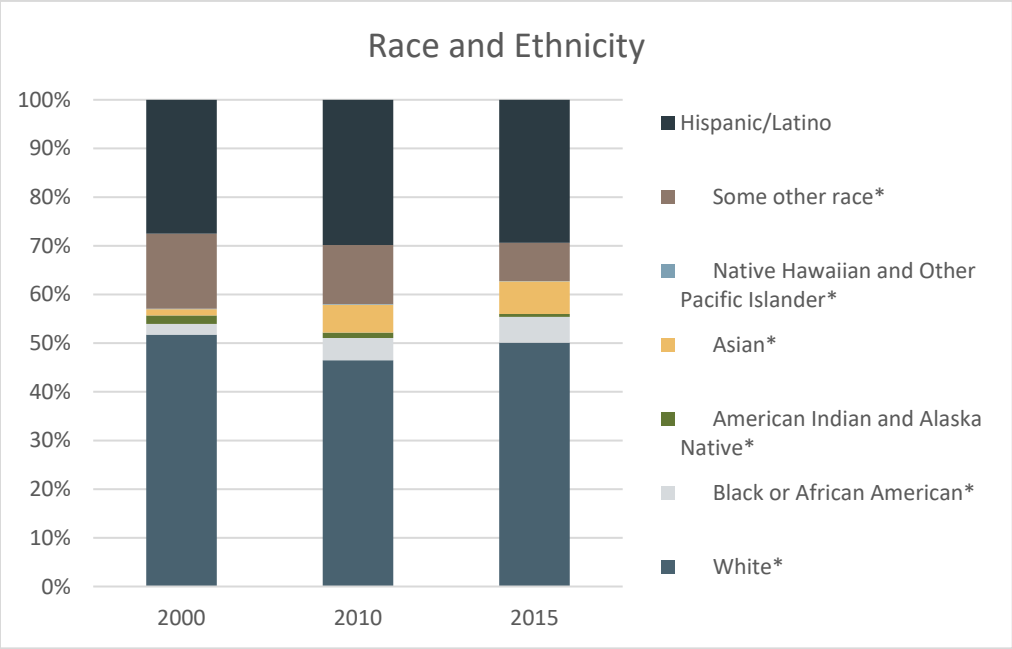
Source: Census 2000, ACS 2011-2015

RACE AND ETHNICITY

The Census Bureau presents race in two ways: “race alone” and “race in combination.” For the purpose of this Existing Conditions Report, the chart below categorizes race into White, Black, American Indian, Asian, Pacific Islander, and Some Other Race. Each of the racial groups numbers are reported in total and by number of people identifying with Hispanic as an ethnicity.

Over the last 15 years, there have been various noticeable demographic trends in the City. The White population decreased slightly from 68.1% to 62.8% between 2000 and 2010, but steadily increased to 66.5% by 2015. The Black and Asian population has significantly increased, with the Black population doubling from 2.9% of the population to 6.2% and the Asian population more than tripling from 1.7% to 7.7% between 2000 to 2010. In 2015, the Black population represented 7% and the Asian population 8.9% of the population. The number of people that identified as Hispanic steadily increased, albeit at a slower rate, from 36.2% to 40.3% between 2000 and 2010, dropping slightly to 39% in 2015. On the other hand, the American Indian and Alaska Native population has steadily decreased from 2.3% in 2000 to 1.5% in 2010 to 0.8% in 2015.

FIGURE 2.7: BEAUMONT RACE AND ETHNICITY



*Not Hispanic

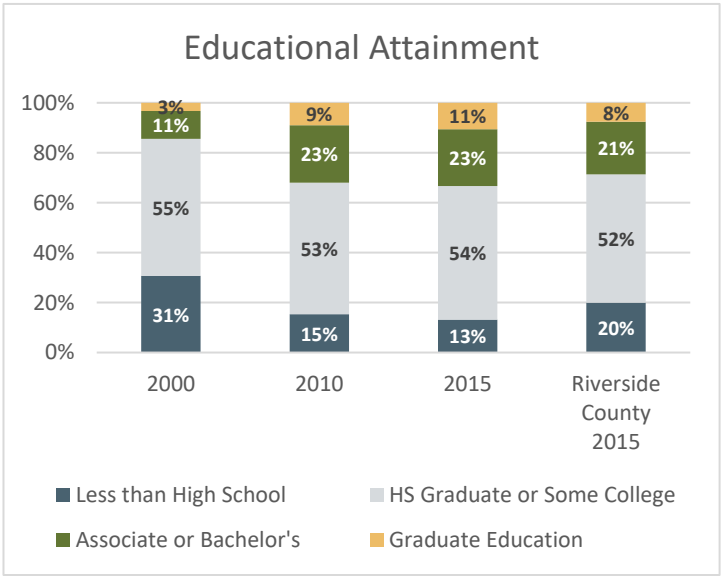
Source: Census 2000, ACS 2006-2010, ACS 2011-2015

EDUCATIONAL ATTAINMENT

Overall, education levels in Beaumont increased between 2000 and 2015. The percentage of residents who completed an associate's or bachelor's degree increased from 11% to 23%. During the same time period, the percentage of residents who completed high school or had less than a high-school education declined. Compared to the County, the educational attainment levels of residents in the City are slightly higher.

Although education levels in the City increased, there are significant differences by ethnicity and gender. These figures compare the educational attainment levels between White, Black, and Hispanic/Latino males and White Black, and Hispanic/Latino female residents 25 years and over.

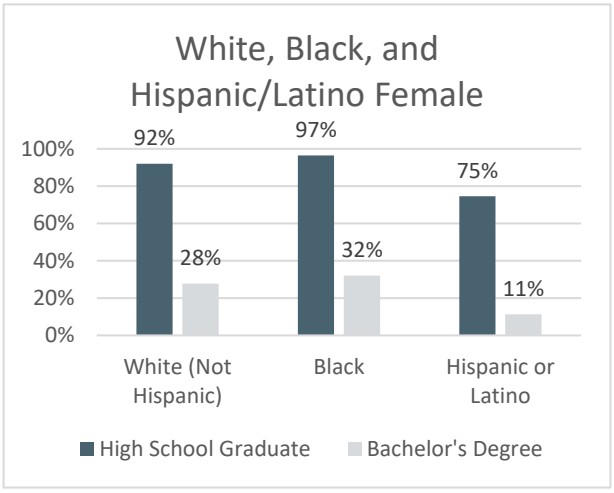
FIGURE 2.8: BEAUMONT EDUCATION ATTAINMENT



Source: Census 2000, ACS 2006-2010, ACS 2011-2015

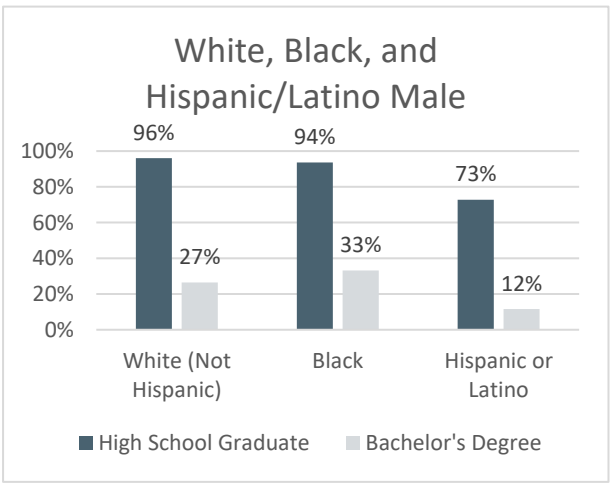
Overall, educational levels among Latino residents are significantly lower than their White and Black counterparts. Seventy-three percent of Hispanic/Latino males are high school graduates, compared to 96% of White males and 94% of Black males. Only 12% of Hispanic/Latino males obtained a Bachelor's degree compared to 27% of White males and 33% of Black males. Educational levels are also significantly higher for White and Black females compared to Hispanic/Latina female residents. Only 11% of Hispanic/Latina females obtained a bachelor's degree, compared to 32% of Black females and 28% of White females.

FIGURE 2.9: FEMALE EDUCATION ATTAINMENT



Source: Census 2000, ACS 2006-2010, ACS 2011-2015

FIGURE 2.10: MALE EDUCATION ATTAINMENT



Source: Census 2000, ACS 2006-2010, ACS 2011-2015

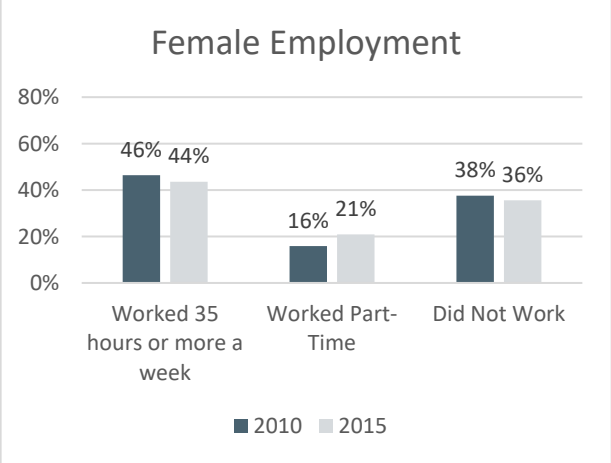
EMPLOYMENT

The City's unemployment rate has dramatically decreased since 2010, a trend that is discussed in more detail in the *Our Market* section of the Existing Conditions Report.

Although the City unemployment rate remains lower than the County as a whole, there are some notable differences between male and female employment in Beaumont. Between 2010 and 2015, the percentage of males working full time dropped from 69% to 63%, while the percentage of males working part time increased slightly from 11% to 13%. The percentage of females working full-time decreased slightly from 46% to 44%, while the percentage of females working part-time increased from 16% to 21%.

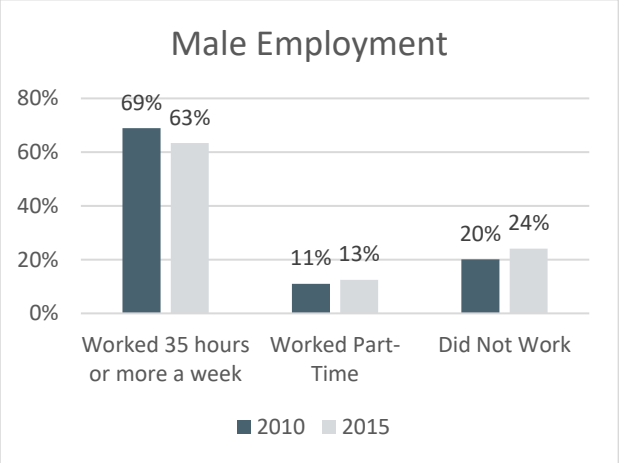
There was also a notable difference between male and female employment in Beaumont. While the percentage of males not working increased from 20% to 24% between 2010 and 2015, the percentage of females not working decreased from 38% to 36%.

FIGURE 2.11: FEMALE EMPLOYMENT



Source: Census 2000, ACS 2006-2010, ACS 2011-2015

FIGURE 2.12: MALE EMPLOYMENT



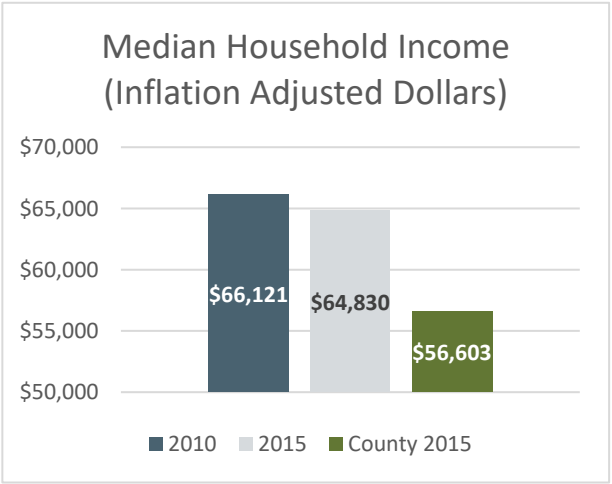
Source: Census 2000, ACS 2006-2010, ACS 2011-2015

INCOME AND POVERTY

Between 2010 and 2015, the median household income in Beaumont decreased by $1,291, falling from $66,121 to $64,830. Relative to the County, the City's median household income was significantly higher than the County total ($56,603) in the year 2015.

According to the American Community Survey Estimates (2011-2015), approximately 9% of families in the City had income below the Federal poverty level during the last 12 months. This was significantly lower than the countywide (13%) and statewide (14%) averages. Furthermore, 11.7% of the households earned incomes less than $25,000 per year and 32.1% of households earned less than $50,000 per year.

FIGURE 2.13: MEDIAN HOUSEHOLD INCOME



Source: Census 2000, ACS 2006-2010, ACS 2011-2015

HEALTH

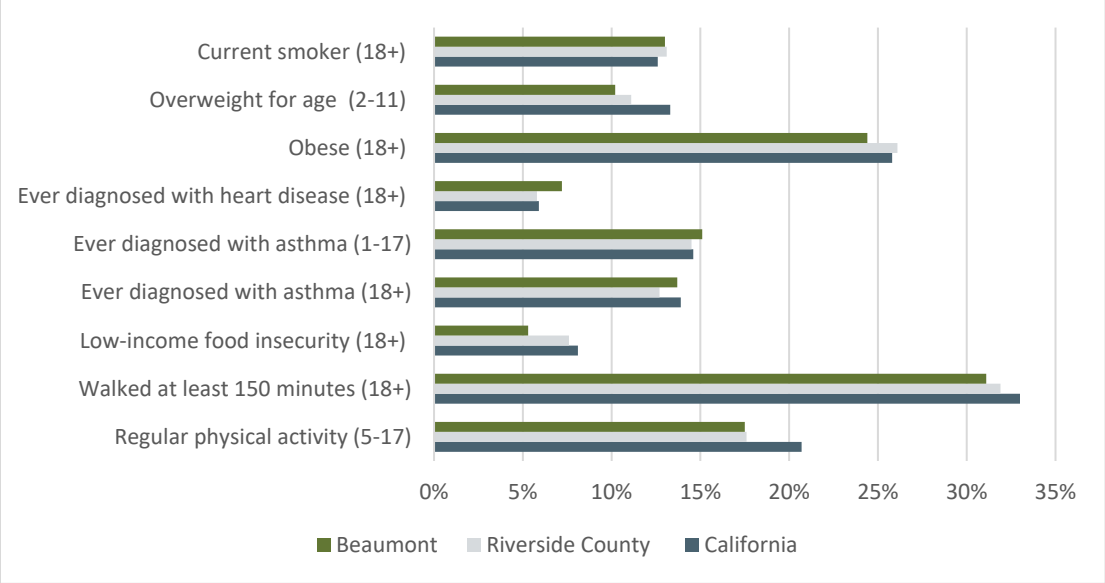
Compared with Riverside County and California, Beaumont residents have lower rates of obesity and lower rates of food insecurity. However, residents are slightly below average in terms of physical activity with about 31% of Beaumont adults walking at least 150 minutes a week compared to 33% of Californians. Only 17.5% of Beaumont youth engage in regular physical activity compared with 20.7% of California youth.

TABLE 2.1: HEALTH INDICATORS

	Beaumont	Riverside County	California
Fair or poor health (0-17)	4.6%	4.8%	5.2%
Fair or poor health (18-64)	20.1%	20.8%	19.2%
Fair or poor health (65+)	21.8%	24.7%	27.8%
Regular physical activity (5-17)	17.5%	17.6%	20.7%
Walked at least 150 minutes (18+)	31.1%	31.9%	33.0%
Low-income food insecurity (18+)	5.3%	7.6%	8.1%
Ever diagnosed with asthma (18+)	13.7%	12.7%	13.9%
Ever diagnosed with asthma (1-17)	15.1%	14.5%	14.6%
Ever diagnosed with heart disease (18+)	7.2%	5.8%	5.9%
Obese (18+)	24.4%	26.1%	25.8%
Overweight for age (2-11)	10.2%	11.1%	13.3%
Current smoker (18+)	13.0%	13.1%	12.6%

Source: California Health Interview Survey

FIGURE 2.14: SELECTED HEALTH INDICATORS (2014)



Source*: California Health Interview Survey*

The most critical health issue in Beaumont is heart disease, with about 25% more cases of heart disease diagnosed in the City than at the County or State level. Heart disease is the leading cause of death in the County and California. Several factors contribute to heart disease, including diet, exercise, genetic predisposition, and pollution

exposure. According to a new study from the UC Berkeley School of Public Health, "Chronic exposure to ground level ozone, a powerful greenhouse gas and a widespread air pollutant in many major cities, is linked to premature death from cardiovascular disease." Coordinated planning efforts across the fields of land use, transportation, design, and housing represents an opportunity to improve people's health across the City.

ENVIRONMENTAL JUSTICE

Senate Bill 1000 (or the Planning for Healthy Communities Act) was signed into law by Governor Jerry Brown on September 24, 2016. SB 1000 requires that cities and counties not only identify environmental and health impacts within their boundaries, but also address the needs of vulnerable communities most impacted by their effects. Given the timeline for the Beaumont General Plan update and the revision of more than two elements to the document, the requirements of SB 1000 will apply.

DEFINITION OF "DISADVANTAGED COMMUNITIES"

An area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area and is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.

California Health and Safety Code Section 39711

(a) The California Environmental Protection Agency shall identify disadvantaged communities for investment opportunities related to this chapter. These communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:

(1) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

(2) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment.

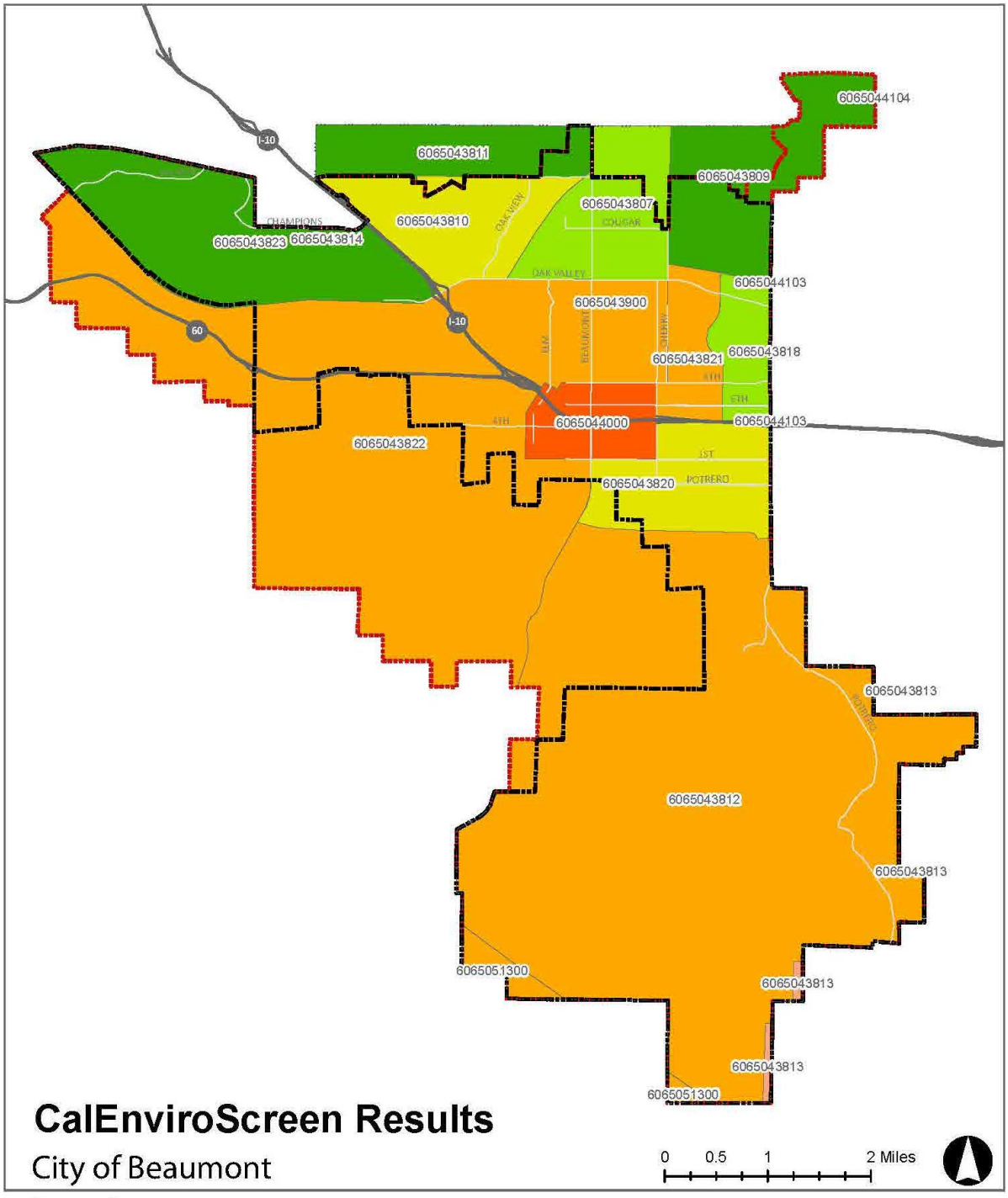
(b) The California Environmental Protection Agency shall hold at least one public workshop prior to the identification of disadvantaged communities pursuant to this section.

(c) Chapter 3.5 (commencing with Section 11340) of the Part 1 of Division 3 of Title 2 of the Government Code does not apply to the identification of disadvantaged communities pursuant to this section.

SB 1000 defers to CalEPA's definition of a disadvantaged communities as an area in the top 25% highest air pollution scores in the state based on the California Communities Environmental Health Screening Tool 3.0 (CalEnviroScreen 3.0) scores. CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. This tool was updated in 2017 to included health and socioeconomic indicators in addition to environmental burden. (A community's score must be greater than or equal to 36.62). CalEnviroScreen indicators fall into four broad groups—exposures, environmental effects, sensitive populations, and socioeconomic factors.

- **Exposure** indicators are based on measurements of different types of pollution that people may come into contact with (e.g., ozone, PM 2.5, diesel, pesticides, traffic, drinking water).
- **Environmental effects** indicators are based on the locations of toxic chemicals in or near communities (e.g., cleanups, groundwater threats, hazardous waste, impaired water, solid waste.)
- **Sensitive population** indicators measure the number of people in a community who may be more severely affected by pollution because of their age or health (e.g., asthma, low birth weight, cardiovascular rate).
- **Socioeconomic factor** indicators are conditions that may increase people's stress or make healthy living difficult and cause them to be more sensitive to pollution's effects (e.g., education, linguistic isolation, poverty, unemployment, housing burden).

FIGURE 2.15: CALENVIROSCREEN RESULTS MAP



Data Sources: City of Beaumont GIS data, Riverside County GIS data, 2015 ESRI, World Terrain Base

Census tract 6065044000 in Beaumont has a CalEnviro 3.0 Score of 82%. Because this tract is in the top 25% of scores statewide, it qualifies as a "disadvantaged community." Census tract 4000 stands out as a disadvantaged community because it of disproportionately high socioeconomic challenges and environmental burdens.

As shown in the table below, there is no one single factor burdening this area. Rather, several environmental, health, and socioeconomic indicators—including ozone, hazardous waste, cardiovascular rate, unemployment and housing burden—that make this community a priority for social justice "investments." Census tract 4000 has similar poverty rates to 3900 and similar unemployment rates to 3812 and 3900. It has similar high hazardous waste score to 3820 and 3821. It also has slightly lower scores than other tracts for environmental exposure.

TABLE 2.2: BEAUMONT CALENVIROSCREEN RESULTS BY CENSUS TRACT

Census Tract 606504+	3807	3812	3818	3820	3821	3900	4000
Population:	5,743	5,409	3,832	3,895	2,707	6,405	2,109
CalEnviroScreen 3.0 Percentile:	41 - 45%	61 - 65%	36 - 40%	51 - 55%	61 - 65%	61 - 65%	81 - 85%
Pollution Burden Percentile:	13%	49%	23%	44%	50%	36%	58%
Population Characteristics Percentile:	68%	63%	51%	54%	62%	80%	91%
Ozone:	100	98	100	98	100	100	98
PM 2.5:	33	31	31	33	31	33	33
Diesel:	39	12	65	34	65	67	58
Pesticides:	4	0	0	0	0	0	0
Toxic Releases:	34	32	28	28	30	33	33
Traffic:	7	67	59	87	66	11	80
Drinking Water:	43	82	47	41	43	34	34
Cleanups:	0	18	0	42	42	13	60
Groundwater Threats:	0	62	0	0	0	0	32
Hazardous Waste:	0	0	0	92	96	87	96
Impaired Water:	0	0	0	0	0	0	0
Solid Waste:	33	85	0	0	9	50	0
Asthma:	70	84	61	62	70	70	70
Low Birth Weight:	69	NA	75	35	56	37	77
Cardiovascular Rate:	98	99	93	94	98	98	98
Education:	61	21	29	30	56	66	76
Linguistic Isolation:	35	25	46	46	53	57	52
Poverty:	60	24	31	34	54	73	74
Unemployment:	43	86	11	67	10	85	87
Housing Burden:	22	24	6	36	33	77	89

The goal of SB 1000 is to help identify and reduce risks in communities disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation. In doing so, SB 1000 offers an opportunity to address existing community health concerns and mitigate the impacts of future health issues, including increasing access to healthy food, preventing chronic disease, improving transportation facilities and infrastructure, promoting healthy land use design, and encouraging physical activity.

3. OUR LOCAL MARKET

OVERVIEW

This Chapter of the Existing Conditions Report summarizes the economic and market conditions in the City of Beaumont. The Market Study (see Technical Appendix A) addresses topics in this Chapter in more technical detail and supports the statements and findings with supporting data, sources, and calculations. The purpose of this Chapter and the Market Study is to present current economic, market, and general fiscal conditions in the context of historic and future trends as a basis for updating and strengthening the economic development policy of the General Plan.

KEY FINDINGS

The following key findings summarize important takeaways for this Chapter.

- Beaumont's population is projected to increase 118% from 36,877 in 2010 to a population of 80,600 by the year 2040.[1]
- Beaumont's households are projected to grow by 15,399 between 2010 and 2040[2]; the residential projects approved or under entitlement will provide 7,427 new units..
- In 2015, the industry with the highest total employment in Beaumont (over 30% of total resident's employment) was "educational services, and health care and social assistance." This likely represents employment at local school districts, as well as universities in the region. Because of this industry's strong representation relative to the rest of Riverside County, it signals a potential opportunity for future growth in the City.
- Over 70% of those who live in Beaumont work elsewhere in the region. The average commute time in Beaumont is just over 31 minutes, higher than the State average of 26.9 minutes, and may indicate that the majority of Beaumont residents are traveling to Riverside, San Bernardino, or Palm Springs for work.
- Household income in Beaumont is greatly outpacing the County, which will improve opportunities for retail growth, particularly in retail segments where residents are currently spending dollars outside of the City limits (e.g., fine dining, casual dining, apparel, etc.).
- Beaumont lacks an attractive, walkable retail environment, but future opportunities exist in the Downtown area along 6th Street, which has an existing grid structure and "mom and pop" shops, and the vacant Urban Village site, which could strategically target future retail and residential demand. Developing walkable retail spaces could help change Beaumont's image as a bedroom community and offer more unique local shopping experiences resulting in more spending in the community.
- Beaumont's industrial inventory expanded 109% from 1,159,042 square feet in 2000 to 2,425,911 square feet in 2016. There is no vacancy in industrial space and the Wolverine Worldwide West Coast Distribution Center project is nearing completion. With significant industrial growth forecasted to continue, the City will need to develop appropriate policy to address fiscal implications of industrial uses to ensure long-term fiscal sustainability.

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[1] SCAG Regional Growth Forecast 2016-2040.

[2] Ibid, US Census Bureau, 2010, Census Summary File 1.

- Major existing economic generators in Beaumont include the Beaumont Unified School District, manufacturing firms (e.g., Priority Pallet, Inc. and Dura Plastic Products, Inc.), the City of Beaumont, general consumer goods (e.g., Walmart), building and construction (e.g., 84 Lumber), fuel and service stations, and restaurants and hotels. Moderate to strong growth is generally forecasted for existing economic generators in the City.

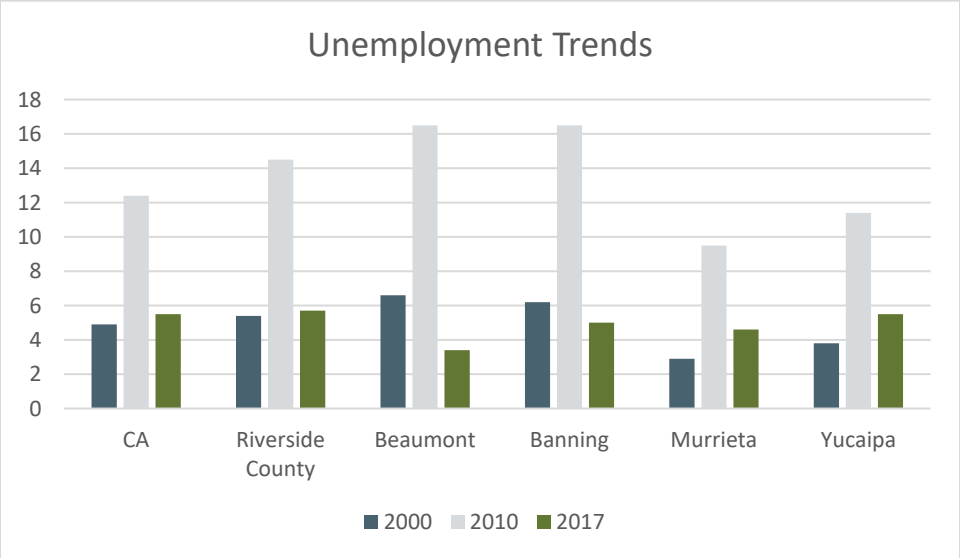
ANALYSIS

EMPLOYMENT TRENDS

Employment and industry trends indicate changes to a city's economic climate, potential, and performance. Industries with a higher representation in Beaumont than in Riverside County reflect potential future growth opportunities for Beaumont. In 2015, the industry with the highest total employment in Beaumont (over 30% of total resident's employment) was "educational services, health care and social assistance." This likely represents employment at local school districts, as well as universities in the region. Because of this industry's strong representation relative to the rest of Riverside County, it signals potential opportunity for future growth. The "retail trade" industry also represents a high employment category in Beaumont (at 13% of resident's employment); however, when compared to the County, Beaumont has a higher concentration of those working in "public administration" and "other services, except public administration" than "retail trade."

Unemployment rates present important information on a number of economic considerations, including job availability and retention, compatibility with local workforce, and overall economic performance. As shown in Figure 3.1, the 2008 economic recession had a notable impact on Beaumont, increasing the City's 2010 unemployment rate to 16.5%, which was much higher than the County and State rates of 14.5% and 12.4%, respectively. However, the unemployment rate in Beaumont has decreased since 2010 and is currently at 3.4%, which is significantly lower than the County and State rates of 5.7% and 5.5%, respectively.

FIGURE 3.1 UNEMPLOYMENT TRENDS



Sources: California Economic Development Department, 2000-2017, US Census Bureau, Census 2000 Summary File 4, US Census Bureau, 2006-2010 American Community Survey 5-Year Estimates

JOBS HOUSING BALANCE

The relationship between the number of jobs and the amount of housing directly impacts quality of life indicators such as travel times, congestion, air pollution and family stability, as well as economic indicators such as workplace efficiency and employee retention.[3] The ratio of jobs and housing in Beaumont is among the lowest in the region, which indicates that the majority of Beaumont residents do not work within City limits. As shown in Table 3.1, over 70% of those who live in Beaumont work elsewhere in the region. Average commute time in Beaumont is just over 31 minutes, higher than the State average of 26.9 minutes, and may indicate that the majority of Beaumont residents are traveling to Riverside, San Bernardino, or Palm Springs for work.

TABLE 3.1 EMPLOYMENT INFLOW/OUTFLOW 2014

Live and employed in Beaumont		Live in Beaumont, employed elsewhere (Outflow)		Live elsewhere, employed in Beaumont (Inflow)		Mean travel time to work (mins)
1,142 people	6.3%	12,817 people	70.8%	4,148 people	22.9%	31.6

Source: www.onthemap.ces.census.gov

HOUSING MARKET

Home prices have risen 118% since 2000, consistent with price increases across California; however, increases in rent prices have lagged almost 10% behind the State. The current median home sales price is $282,975, and the median rental price is $1,666. Both home sales and rent prices are significantly lower than median prices in Riverside County and the State. Reflective of this affordability, Beaumont has a high rate of home ownership, at 75%, which is more than 20% higher than ownership rates in California. Most homes in Beaumont were constructed after 2000, and Beaumont has a vacancy rate of only 5.9%, lower than both the State and County.

The existing and future housing stock is dominated by detached single-family homes in suburban neighborhoods. As shown in Table 3.2, almost 87% of the current housing stock is detached single-family.

TABLE 3.2 BEAUMONT HOUSING STOCK BY TYPE OF UNIT (2000-2015)

Type of Unit	2000	%	2010	%	2013	%	2015	%
1 unit, detached	2,693	63.20%	10,066	83.20%	11,380	83.20%	11,727	86.46%
1 unit, attached	172	4.00%	213	1.80%	243	1.80%	257	1.89%
2 to 4 units	340	8.00%	690	5.70%	682	5.00%	469	3.46%
5+ units	706	16.60%	660	5.50%	843	6.20%	647	4.77%
Mobile homes, RV, Van, Etc.	347	8.10%	469	3.90%	520	3.80%	463	3.41%
Total	4,258	100%	12,098	100%	13,668	100%	13,563	100%

Source: Census 2000 Summary File 3 (SF 3), Table H030 Units in Structure. 2008-2010 American Community Survey (ACS) 3-Year Estimates, Table B25024 Units in Structure. 2011-2015 American Community Survey 5-Year Estimates, B25024.State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2013, with 2010 Benchmark Sacramento, California, May 2013

[3] SCAG, The New Economy and Jobs-Housing Balance in Southern California (April 2001), pp. 19-20; Dr. John Sullivan, TLNT.

Beaumont's undiversified detached single-family housing stock may be a limiting factor for attracting future residents, as broad residential trends are showing increased preferences for smaller, more affordable units with shared amenities located in walkable, mixed use neighborhoods.[4] These housing preferences reflect needs and demands of millennials and baby boomers, who are often financially constrained and desire convenience, physical activity, and social engagement.

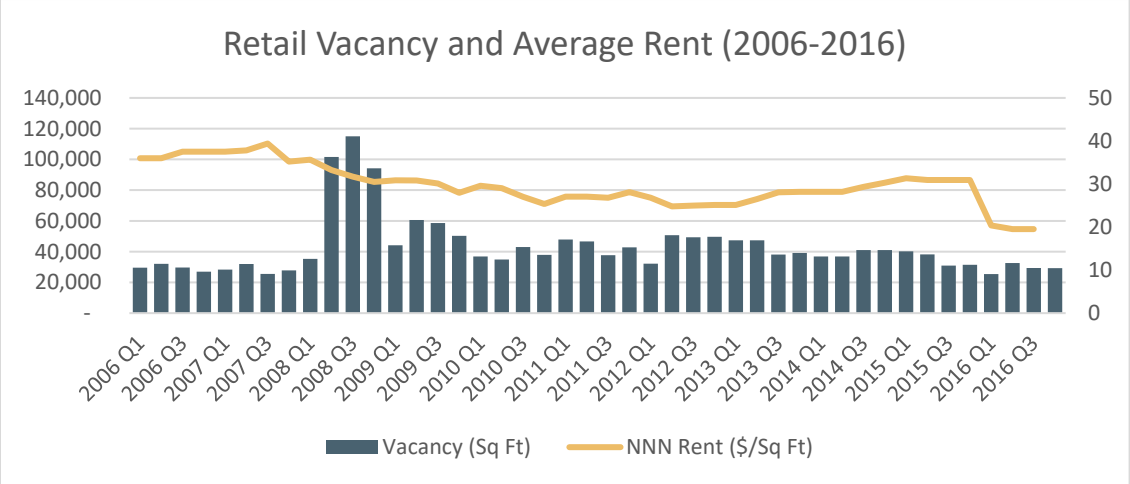
COMMERCIAL MARKET

The commercial market in Beaumont includes retail, hotel, and office.

RETAIL

The retail market in Beaumont is primarily concentrated in three commercial areas: Oak Valley, Downtown (6th Street Corridor), and the Second Street Marketplace. Retail in these areas is largely auto-oriented, with chain retailers focused heavily in the Second Street Marketplace and "mom and pop" shops generally concentrated in the Downtown. The amount of retail space increased by 52% since 2006, with the addition of 25 buildings, but no new square footage has been constructed since 2013. Despite low vacancy rates, average retail rents have declined to $19.52/square foot per year ($1.63/square foot per month), which is almost $4.50 lower than the average asking price in the Inland Empire. The decline in retail rents/square foot and retail rents that are lower regionally is indicative of a cooling retail market, which likely reflects a number of factors (e.g., existing retail space and environments, regional competition, changing retail preferences, and e-commerce growth).

FIGURE 3.2 RETAIL VACANCY AND AVERAGE RENT

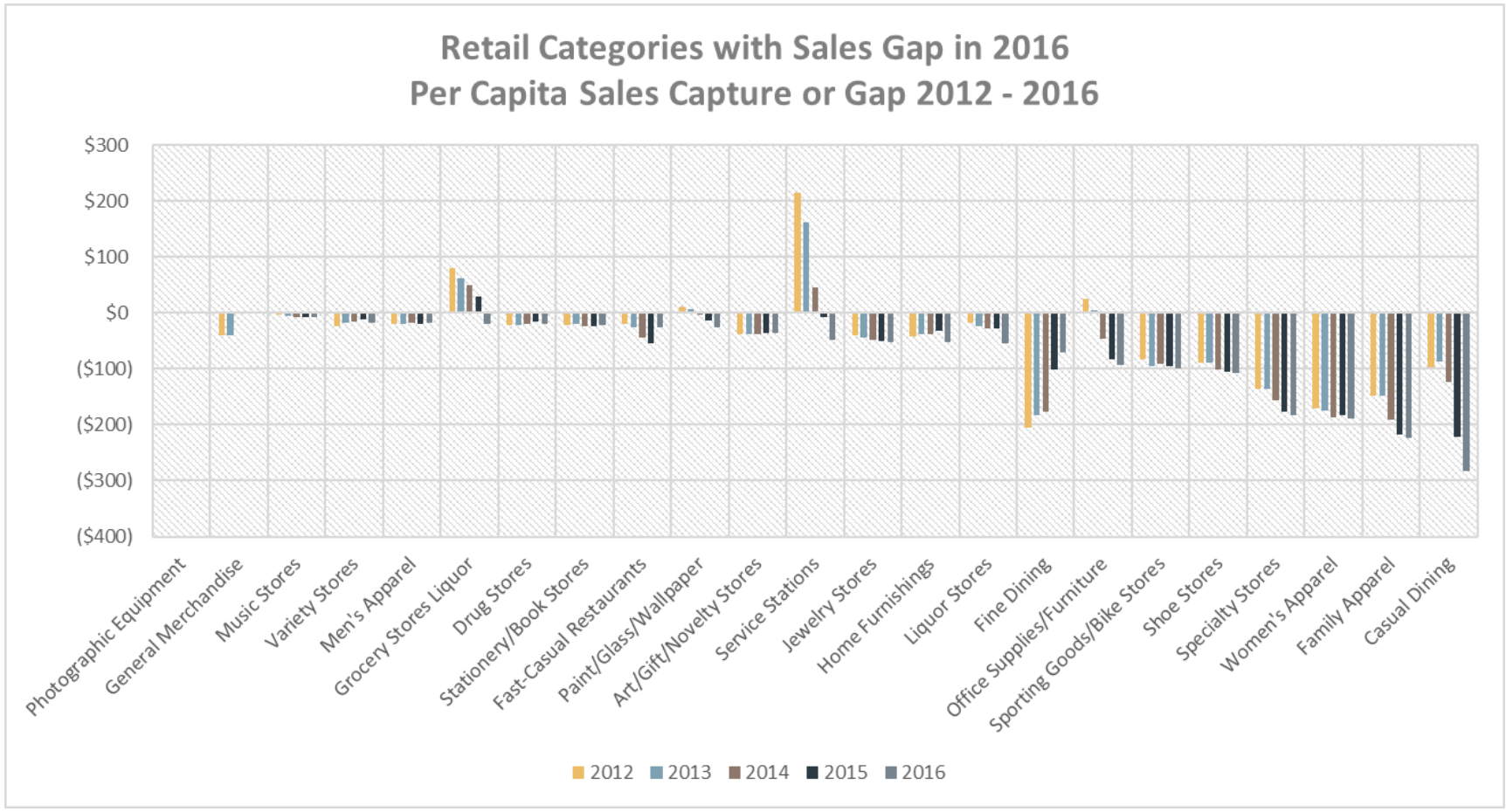


Source: CoStar

Regional shopping is available outside of Beaumont in Moreno Valley, Redlands, Riverside, and Cabazon. Residents have indicated that they travel to these areas for various retail options, including fine dining, entertainment (e.g., movie theater), and specialty retail (e.g., clothing). Retail leakage is a measure of how well local retail establishments are meeting the needs of their residents, and shows where residents are likely spending dollars outside of the city limits. Figure 3.3 shows the retail categories that experienced per capita sales gap or leakage in 2016 and how they performed on a comparative per capita basis from 2012 through 2016.

[4] Urban Land Institute and pwc (2016). *Emerging Trends in Real Estate, United States and Canada 2017*; Lisa Wise Consulting, Inc.

FIGURE 3.3 RETAIL CATEGORIES WITH SALES GAP IN 2016



Sources: HdL, Lisa Wise Consulting, Inc.

Increasing median income of Beaumont residents will improve opportunities for retail growth resulting from higher levels of discretionary income, particularly focused in certain areas where leakage/gaps currently exist (e.g., dining and apparel). However, low vacancies provide few opportunities for new retailers that cannot afford to construct new retail space.

Overall, retail is generally trending toward smaller, walkable, mixed retail experiences to compete with online channels.[5] Beaumont lacks an attractive, walkable retail environment, but future opportunities exist in the Downtown area along 6th Street, which has an existing grid structure, and the Urban Village site, which could strategically target future retail demand, as well as demand in other segments, particularly residential. Developing walkable retail spaces could help change Beaumont's image as a bedroom community and offer more unique local shopping experiences resulting in more spending in the community.

HOTEL

Of Beaumont's five hotels, one is a midscale hotel and the other four are economy. The midscale hotel, the Holiday Inn Express & Suites, is adjacent to the Oak Valley golf course. Beaumont has a higher concentration of economy hotels (80%) compared to the total region (61%), and as a result, the average room rates in Beaumont are $84, which is $8 less than the regional average room rate.

TABLE 3.3 LOCAL & REGIONAL HOTELS BY SCALE

	Beaumont	%	Region	%	Total	%
Economy	4	80%	7	54%	11	61%
Midscale	0	-	3	23%	3	17%
Upper Midscale	1	20%	3	23%	4	22%

Note: Regional analysis includes all accommodations within 10 miles of Beaumont

The Inland Empire has experienced recent hotel development, but none of these hotels have been or are planned to be constructed in Beaumont. Due to this increase in hotels, some forecast that the Inland Empire is potentially reaching a peak in hotel supply. Furthermore, the hotel industry overall is experiencing reduced growth or stabilization that has been speculated to be partially attributed to the sharing economy (e.g., Airbnb, VRBO, etc.). Midscale hotels generally have the best outlook, particularly when compared to upscale or luxury hotels; however, near term hotel demand in Beaumont is low.[6] However, Beaumont may have an opportunity to capitalize on visitation and tourism opportunities based on existing attractions and unique assets (history - railroad, antiques cluster, historic buildings; environment/climate; leisure – golf, open spaces; geography – access to Palm Springs, etc.), which could facilitate future growth in the hotel sector.

OFFICE

There is a very limited supply of office space in Beaumont comprised of two buildings totaling 12,614 square feet. Office rents have fluctuated due to the limited supply and erratic vacancies; the average rent in 2016 was

[5] Cohn Reznick, LLP. (2017) Momentum 207, Commercial Real Estate Outlook: Agility and Discipline in a Time of Uncertainty; Williams, Champaign. (December 14, 2016). BizNow. Placemaking: These landlords have transformed mere shopping centers into destination centers; Lisa Wise Consulting, Ine.

[6] Sperance, Cameron, Bisnow Boston, U.S. Hotel Industry Continues High Performance Streak, March 1, 2017; Urban Futures Incorporated, Econsolutions by Hdl (2017). Beaumont Potrero Bridge & Interchange Project. Land Use Assumptions, Market Viability, And Revenue Projection Study. Prepared for the City of Beaumont.

$31.56/square foot per year ($2.63/square foot per month). While current office vacancy in Beaumont is low, office vacancies are relative high regionally, demonstrating a low demand for this sector.

General office trends include smaller square footage requirements per employee, which are being driven by four major forces according to CoStar, a leading commercial real estate analytics firm:

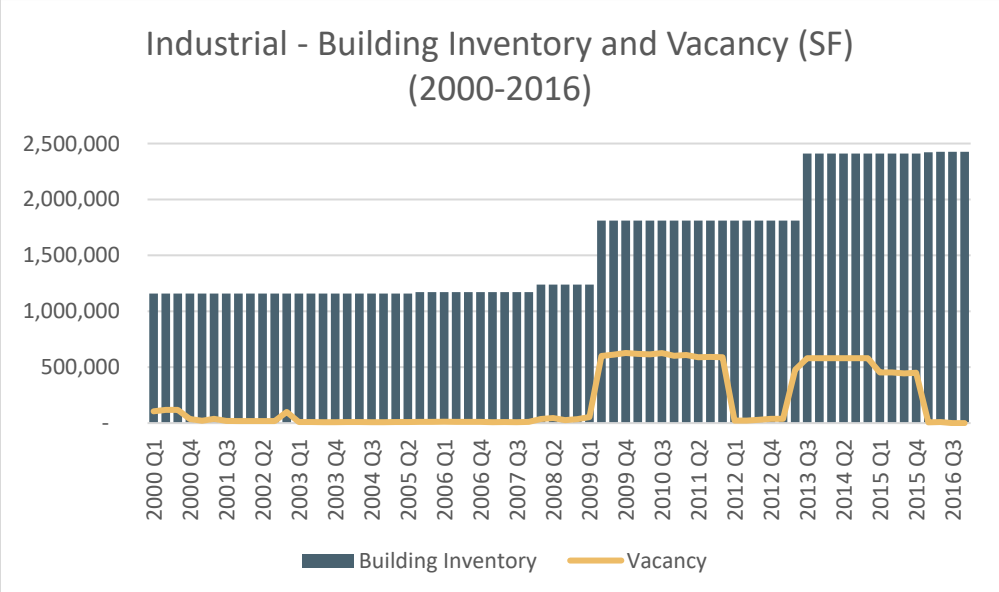
- Move to more standardized work space;
- Non-dedicated office space (sharing), along with more on-site amenities;
- Growing acceptance, even encouragement of telecommuting and working in third places; and
- More collaborative work spaces and functional project teams.[7]

Also, business owners are relocating offices to more urban areas for better access to a broader and more established workforce pool. Population growth and a more vibrant retail sector could create synergies with, and demand for, office space in Beaumont.

INDUSTRIAL MARKET

The Inland Empire is growing significantly as a hub with rapidly growing facilities to distribute goods arriving through the ports of Los Angeles and Long Beach. Beaumont has capitalized on its location along the primary transportation corridor of our nation's busiest port complex to offer break bulk, storage, and transport services. Beaumont's industrial inventory expanded 109% from 1,159,042 square feet in 2000 to 2,425,911 square feet in 2016. There is no vacancy in industrial space and a significant industrial project is nearing completion (Wolverine Worldwide West Coast Distribution Center). Industrial rents were approximately $4/square foot per year ($0.33/square foot per month) in both 2015 and 2016, representing relatively affordable industrial space. However, with significant industrial growth forecasted, the City will need to develop appropriate policy to address fiscal implications of industrial uses to ensure long-term fiscal sustainability.

FIGURE 3.4 INDUSTRIAL – BUILDING INVENTORY AND VACANCY



Source: CoStar

[7] Heschmeyer, Mark (2013), CoStar News.

ECONOMIC GENERATORS

Key economic generators in Beaumont can be categorized by major employer and sales tax producers. Major employers in Beaumont include the Beaumont Unified School District, Walmart, Lowe's Distribution Center, manufacturing firms (e.g., Priority Pallet, Inc. and Dura Plastic Products, Inc.), and the City of Beaumont. The top sales tax generating industry types in 2016 were general consumer goods, building and construction, restaurants and hotels, and fuel and service stations[8]. Some examples of businesses in these top sales tax generating industries are listed below:

- **General consumer goods.** Walmart, Best Buy, Ross, Kohl's
- Building and construction. Home Depot, 84 Lumber
- **Restaurants and hotels.** Chilis, Bakers Burgers, Holiday Inn Express & Suites
- **Fuel and Service Stations.** Beaumont Shell, Grove 76, Oak Valley Chevron9

Given the future market demand and employment trends, Table 3.4 describes the potential forecast for existing economic generators; moderate to strong growth is generally forecasted for existing economic generators.

TABLE 3.4 FORECAST OF EXISTING ECONOMIC GENERATORS

Existing Economic Generator	Future Growth	Why?	Typical Occupation Median Salary (2015 USD) [1]	Median Income Difference [2]
Unified School District	Strong	Population increase, household size	$51,875	$19.460
City of Beaumont	Moderate	Population increase, fiscal constraints	$51,875	$19.460
General Consumer Goods	Moderate/ Strong	Population increase, higher household incomes, e-commerce growth	$25,143	($7,272)
Building and Construction	Strong	Local construction of pipeline projects, strong regional construction growth	$37,228	$4,813
Fuel and Service Stations	Moderate/ Strong	Major transportation route, e-commerce expansion, autonomous vehicles, fuel	$25,143	($7,272)
Restaurants and Hotels	Moderate/ Strong	Population increase, higher household incomes, weak near-term hotel demand	$15,758 - $30,551	($16,657 - $1,864)

1) U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates. Occupation by Sex and Median Earnings in the Past 12 Months; Lisa Wise Consulting, Inc.
2) Median income calculated as 1/2 2015 median household income ($64,830 / 2 = $32,415).

FISCAL PERFORMANCE

The City has faced budgetary challenges following slow economic recovery from the Great Recession (2007-2009) and fiscal stress resulting from State mandates and elimination of Redevelopment Agencies in 2012. Furthermore,

[8] HdL.

[9] City of Beaumont, Annual Budget, FY 2016-2017

Beaumont continues to address a corruption scandal involving seven former Beaumont officials, which has resulted in actions to improve the City's financial management policies and internal controls, as well as reduced City staff in both number and compensation. The City is working to restore its financial sustainability, which is a primary focus of the General Plan Update.

While some land uses may be viable from a market perspective (i.e., profitable to a developer or investor), they may not be fiscally beneficial to the City. For instance, an industrial warehouse may be profitable from the perspective of a private investor or business operator, but provides little to no sales tax revenue to the City. Therefore, the City must assess potential land use policy with an acknowledgement of fiscal implications, and within the context of market realities.

While Redevelopment Agencies were eliminated in 2012, new funding tools are emerging, which include Enhanced Infrastructure Financing Districts (EIFDs), State cap-and-trade funded programs (e.g., Affordable Housing and Sustainable Communities Program), crowdfunding, and tactical urbanism. Other reliable funding tools include business improvement districts (BIDs), community development corporations, and tax credits. These options can be explored when evaluating implementation of various General Plan actions and programs.

BABY BOOMERS

Baby boomers and millennials are the key demographic cohorts moving the residential market, which is being affected by their financial constraints, needs, and preferences. Trends show increasing demand for smaller units that are in walkable settings, but also an increase in multigenerational living. Also, services for financial assistance since there will be an increasing number of lower income seniors. The significant growth in the 65 and over population over the next 20 years will have a dramatic impact on housing needs as well as necessary services. Generally, these services include providing health care and assistance for those who have disabilities, from a mobility disability (e.g., difficulty walking, getting in and out of bed, climbing a flight of stairs) and cognitive impairment (e.g., dementia) to long-term care (e.g., home health aide, assisted living care, nursing, etc.).

E-COMMERCE

Retail continues to be dynamic, adjusting to competition with online channels, often through new store formats (e.g., smaller, urban footprints), the provision of more experience-based retail environments, or convenience retail. With the rise of e-commerce comes increased demand for distribution networks that can provide swift delivery, including large distribution centers, as well as smaller "last mile" centers.

ONLINE HOSTING SERVICES

With the emergence of the sharing economy, online hosting services (e.g., Airbnb, VRBO, etc.) have experienced a dramatic rise that has caused controversy in many communities related to health and safety, neighborhood character, and fiscal issues. Slowing growth in the hotel market may be partially attributed to the sharing economy.

TELECOMMUTING

Technology has also driven down the amount of office square space required per employee because it has enabled telecommuting, co-tenanting, and shared work spaces. This type of office environment is also financially efficient and is a trend that is expected to continue.

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4. OUR CITY

OVERVIEW

This chapter of the Existing Conditions Report addresses topics related to the physical development of the City of Beaumont and includes an overview of historic setting and buildings, development patterns, existing land use, and streetscape quality.

KEY FINDINGS

The following key findings summarize important takeaways for this Chapter:

- **History.** The city has a rich history and there seems to be an opportunity to capitalize on that history for both placemaking and branding purposes.
- **Downtown.** The city currently lacks a defined, recognizable downtown area, but maintains the historic development pattern of a California railroad town. Few cities have such great downtown potential and, with a rise in experiential retail and entertainment, the City should continue to work to revitalize the Downtown.
- **Housing.** The city's housing stock is relatively new, offering higher quality and higher performing building stock that should be more attractive to future residents. However, the diversity of housing types in the City is low, limiting options for people to remain in their neighborhoods or even in the City as they progress through different life stages.
- **Neighborhoods.** The city offers a few different neighborhood types and the diversity is good for attracting a wide variety of residents. However, the City's neighborhoods have lower levels of connectivity and accessibility to goods and services. Neighborhoods with higher levels of accessibility and walkability are in growing demand and improving accessibility may be important for maintaining demand for Beaumont's neighborhoods into the future.
- **Development potential.** The City has a lot of undeveloped land within its jurisdiction, as well as a lot of entitled development units that may come close to meeting the city's residential development demand over the course of the next General Plan cycle. As such, non-residential development and infill residential development may become important areas of focus for the community and the General Plan update.

ANALYSIS

HISTORIC SETTING

The City of Beaumont was incorporated in 1912. The City of Beaumont sits at the opening of the San Gorgonio Pass which has historically been a gateway between the inland valley/coastal areas and the desert regions of Southern California. People have passed through this area for centuries. The area has been inhabited by the Cahuilla people historically. The Cahuilla people identify the Pass Area as their ancestral lands. Nearby tribes which identify as having ancestral ties in and around the City of Beaumont are the Morongo Band of Mission Indians, Cabazon Band of Mission Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians.

As early as the 1850s, U.S. government surveying parties passed through the vicinity of what is now Beaumont. The location of the town of Beaumont was originally called "San Gorgonia" for a post office that was established on August 21, 1879, at the Southern Pacific Railroad's (SPRR) Summit station (Gunther 1984:456). At the summit of the San Gorgonio Pass, the SPRR's Summit Station served as a rest stop for railway travelers who had just crossed the Mojave Desert on their way to Los Angeles. The railroad station, comprising a small red building, an adjacent turn-table, a water tank and well head, and a few other buildings were all that made up the location. In 1884, George C. Egan purchased the land at Summit Station from the SPRR and platted a 320-acre town site named San Gorgonio (Gunther 1984:457). In November 1887, an investment company run by H.C. Sigler, bought Egan's share in the town site and renamed the town Beaumont, after Sigler's hometown of Beaumont, Texas. The name "Beaumont" has been used extensively in place names, and is derived from the French word for "beautiful mountain." Beaumont was incorporated as a city on November 18, 1912. It was around this same time that the first cherry trees were being planted in Beaumont. By the 1960s, around 40 groves dotted the landscape between Beaumont and Cherry Valley, while farther to the north at Oak Glen an apple industry has been thriving since the 1890s (City of Beaumont, 2013).

Southern Pacific Depot circa 1880's

HISTORIC BUILDINGS AND POINTS OF INTEREST

The oldest part of the modern-day community of Beaumont is focused around the segment of 6th Street between Orange Street and Veile, and 5th and 8th Streets. Key historic buildings in the City are listed in Table 4.1, Key Historic Buildings, and shown on Figure 4.1. Photographs of the key historic buildings are shown below.

TABLE 4.1 HISTORIC BUILDINGS

Historic building	Current Use
Old Bank	Precision Stamping
Old High School	City Hall
Beaumont Carnegie Library	Beaumont Library District
Beaumont Woman's Club	San Gorgonio Pass Historical Society Museum
Old Church	First Christian Church
St. Stephen's Episcopal Church	St. Stephen's Episcopal Church
San Gorgonio Catholic Church	Blessed Kateri Tekakwitha
Beaumont Hotel	Burned down 1909

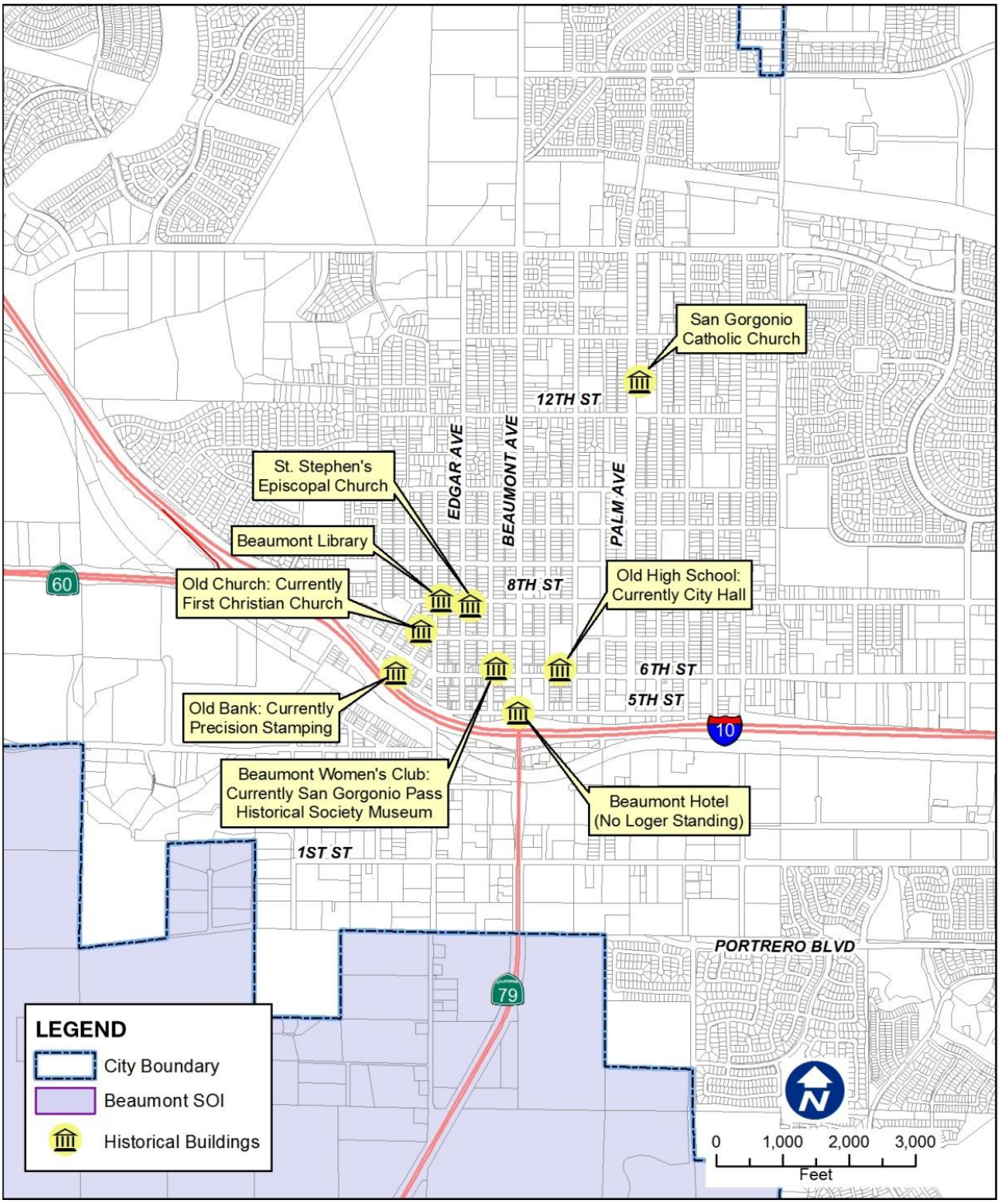
California Points of Historical Interest are buildings, sites, features, or events that are of local significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value. The points of interest identified by the California Office of Historic Preservation within the Planning Area are listed in Table 4.2, Local California Point of Interest Resources.

Bogart House

TABLE 4.2 LOCAL CALIFORNIA POINT OF INTEREST RESOURCES

Resource	Location
Beaumont Carnegie Library	125 E. 8th St
Bogart House	545 Euclid Ave
Frink Ranch	Unlisted
Noble's Ranch	Unlisted
St. Boniface School	Unlisted

FIGURE 4.1 KEY HISTORIC BUILDINGS



Old Bank

Old High School

Beaumont Carnegie Library

Beaumont Woman's Club

Old Church

St. Stephen's Episcopal Church

Beaumont Hotel

San Gorgonio Catholic Church

Beaumont's rich architectural history and connection to the past provides the community with an opportunity not afforded to many Inland Empire communities. Rich and deep historical connections help distinguish communities from one another. In the case of Beaumont, the city's long history could be more deeply capitalized on to help differentiate Beaumont from other Southern California communities, helping to communicate to future residents, investors, and patrons that Beaumont is not just another bedroom community.

LAND USE

PLANNING AREA EXISTING LAND USES

The City of Beaumont has a relatively small built footprint compared to its overall size. The Planning Area includes the Sphere of Influence and a portion of land that is unincorporated, residential and undeveloped land outside of city limits. There is limited data on existing use in land outside of the City limits. The greatest use within the Planning Area at more than 75% of the Planning Area is vacant. The next largest category is single family residential at just more than 10%, followed by commercial at 5.7%. The vacant land category includes lands that are reserved for open space as well as land designated for urban uses that have not been developed yet. Residential development is primarily found north of SR-60 and I-10 in the flatter areas of the city. As shown in Figure 4.2, Existing Land Uses within Planning Area, most of the neighborhoods are single-use neighborhoods without supporting commercial uses or services in close proximity. Most of the vacant land, especially that land designated by the existing General Plan as open space, is found in the southern end of the city in areas generally characterized with steeper slopes and more rugged topography. While there is a substantial amount of vacant land within the core area of the city, as well as along the freeways, much of this land has already been entitled for development. This pattern of existing uses indicates that Beaumont is a bedroom community with much potential for growth.

FIGURE 4.2 EXISTING LAND USES WITHIN PLANNING AREA

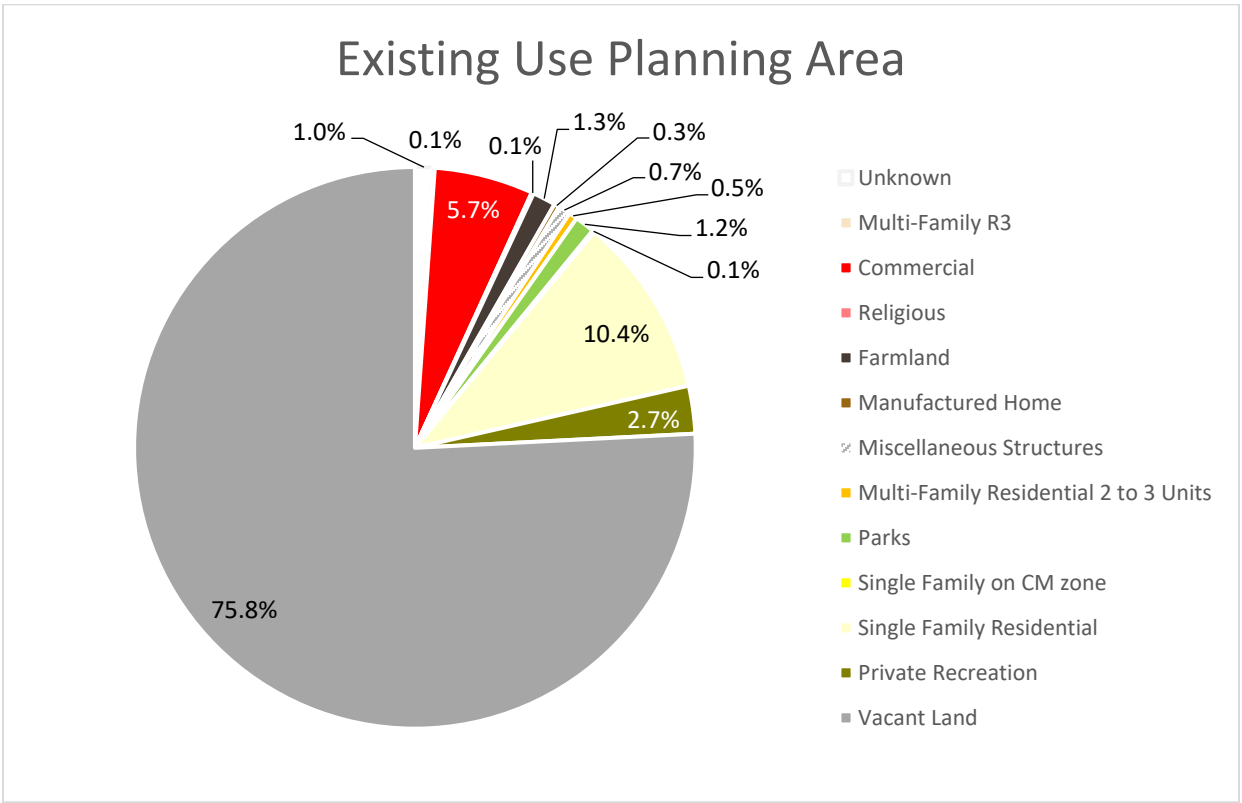
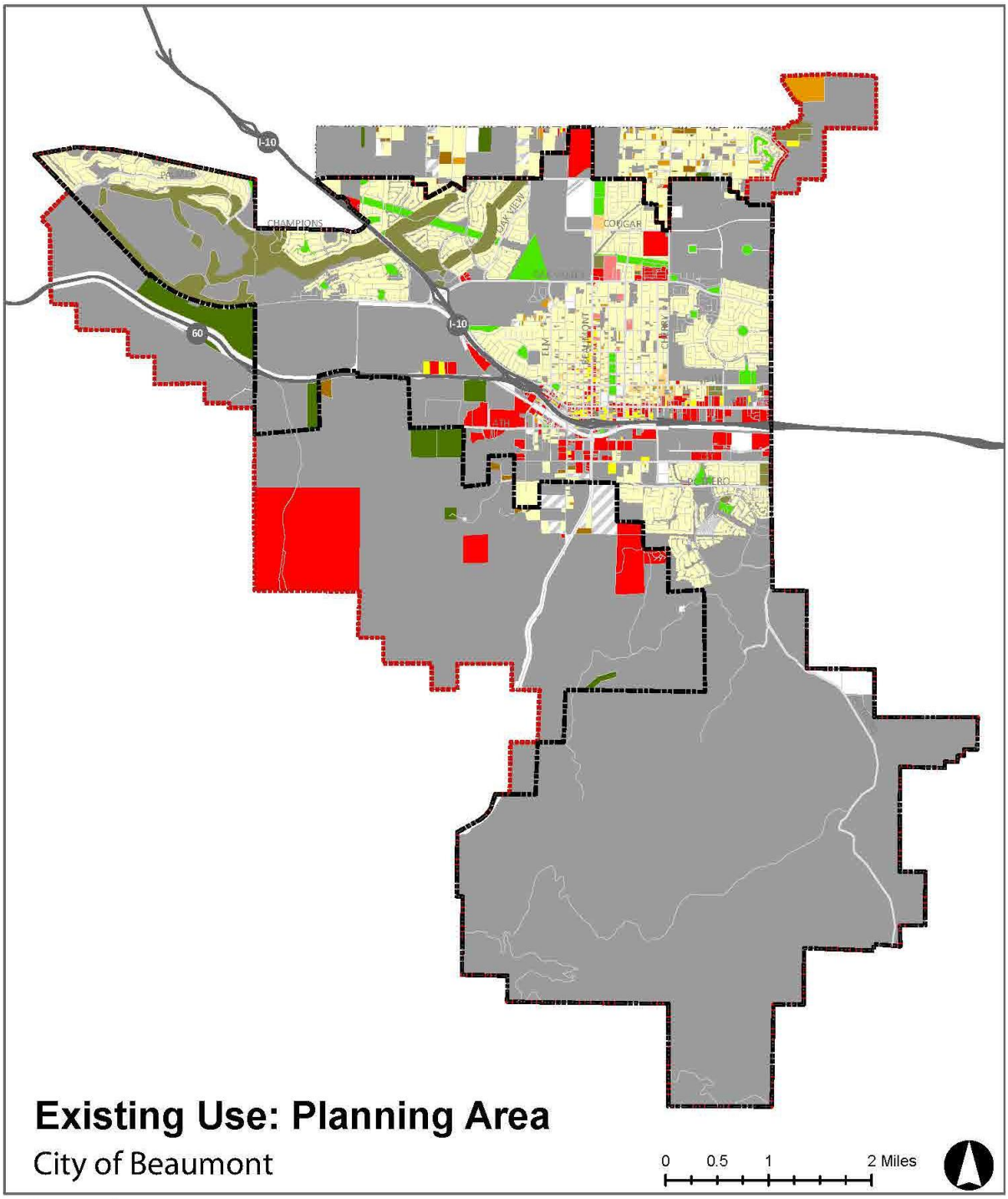


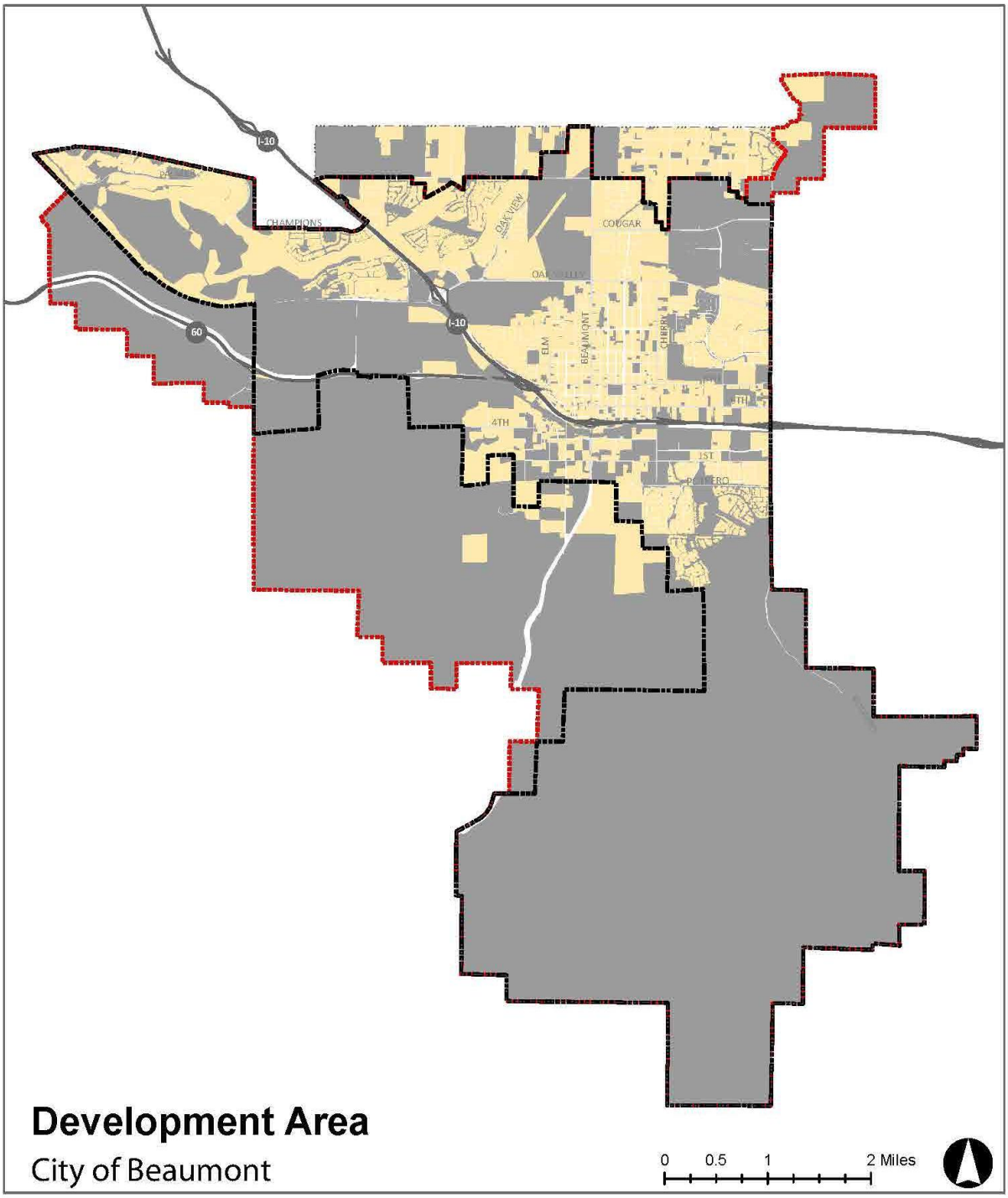
FIGURE 4.3 EXISTING LAND USES WITHIN PLANNING AREA MAP



DEVELOPMENT AREA

A look at the developed area in comparison to the undeveloped area of the city further emphasizes how much undeveloped land is within the city. Figure 4.4 also shows how the city has developed incrementally overtime. The original city center and the smaller parcels and block patterns of the city's early railroad town history are clear. Overtime, development has largely radiated out from the original town center, following the freeway east and west and Beaumont Avenue/SR-79 north. Not all of this undeveloped land could or should be considered for urban uses. Much of the land in the southern half of the city faces numerous development constraints, including topography, habitat, and even hazards associated with previous munitions testing. Similarly, the undeveloped land in the southern half of the city provides important aesthetic benefits, serving as both a backdrop to the city and defining the city's southern gateway. Having such a large area of undeveloped land within the city presents numerous opportunities for the future. Undeveloped land can become new neighborhoods, new shopping centers, new employment centers, or recreation and open space amenities for the community. Even vacant land that has been entitled for a future use but not yet built upon offers the community an opportunity for redefining that land's future, if the community and associated developers have an interest in re-thinking the future of those development projects.

FIGURE 4.4 DEVELOPMENT AREA MAP



Legend

- Sphere of Influence Boundary
- City Boundary
- Planning Area Boundary
- Highways
- Major Roads
- Local Roads
- Developed Land
- Undeveloped Land

Data Sources: City of Beaumont GIS data, Riverside County GIS data, 2015 ESRI, World Terrain Base

PLANNING SUB-AREAS

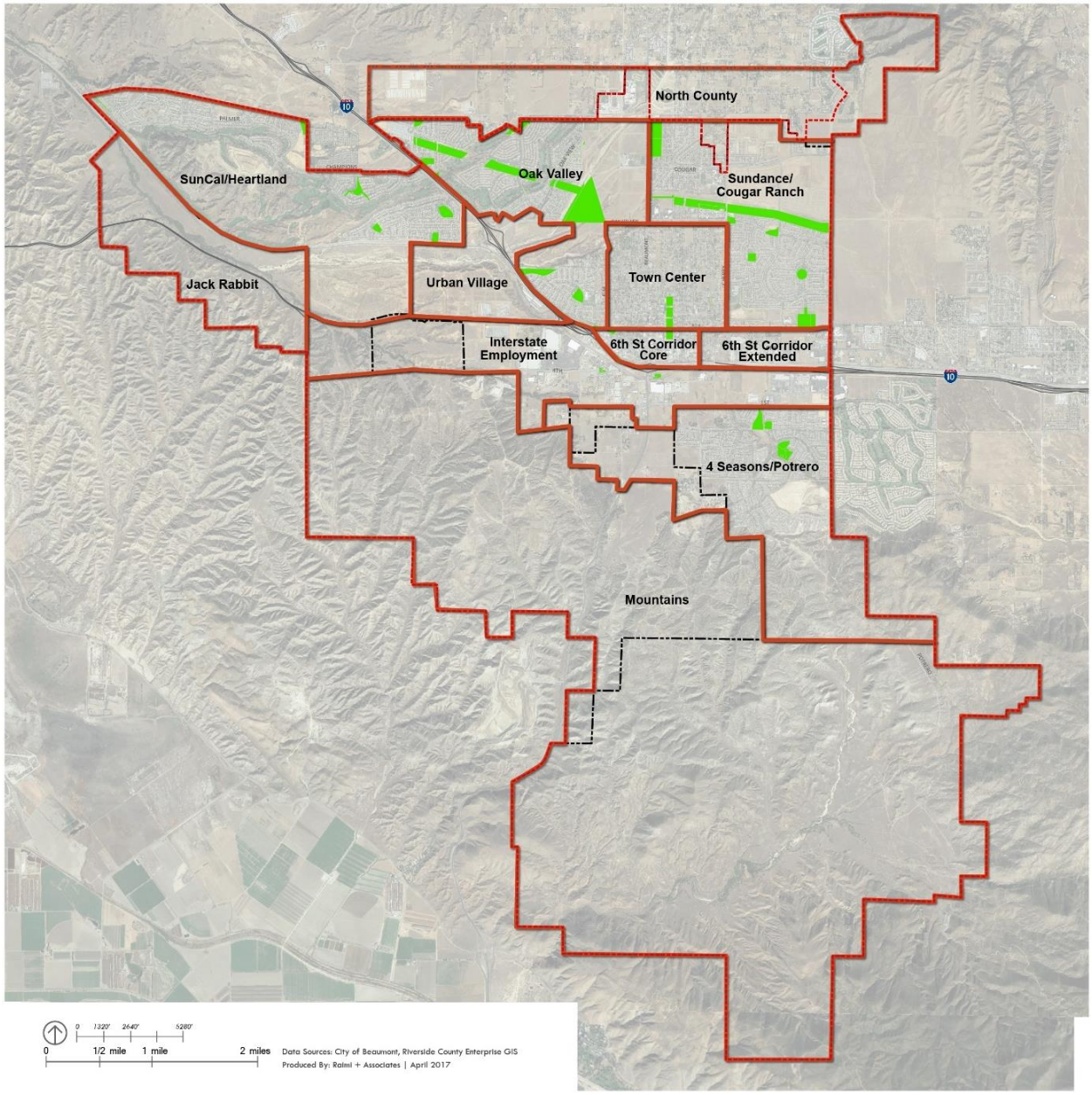
The geographic area governed by the Beaumont General Plan was studied as part of preparing the Existing Conditions Report. The area includes the City's corporate boundaries as they existed in 2005 and the City's established Sphere of Influence. Given the transformation of the City since the 2007 General Plan, the larger Beaumont Planning Area has been subdivided into twelve smaller sub-areas. These planning sub-areas are described below.

- **Town Center.** This sub-area largely corresponds to the older residential section of the City. The sub-area is bounded by 8th Street on the south, Cherry Avenue on the east, Elm Avenue on the west, and Oak Valley Parkway on the north. Residential development within this sub-area largely consists of single-family residential development with multiple-family residential development occupying in-fill lots.
- **Oak Valley.** This planning sub-area is dominated by the Oak Valley Specific Plan, located north of the Oak Valley Parkway and east of the I-10 Freeway and the Three Rings Ranch and Kirkwood developments located to the south of Oak Valley Parkway. The sub-area is bounded by the I-10 Freeway on the west and south, Elm Avenue on the southeast, and Brookside Avenue on the north.
- **North County**. This sub-area is dominated by unincorporated, low density, rural County land. The sub-area includes the community of Cherry Valley and various agricultural uses, including cherry orchards, lavender fields, fruits, herbs and vegetables. This is the only sub-area that includes area outside of the City's jurisdiction, area which has been included to provide the City with a mechanism for coordination with the Cherry Valley community and reconciling any possible conflicts that might arise between the urban uses of Beaumont and the rural uses of Cherry Valley. The sub-area is generally bounded by Cherry Valley Boulevard on the north, Brookside Avenue on the south (and also co-terminates on the west), and extends to Highland Springs Ranch and Inn on the east.
- **Sundance/Cougar Ranch.** This sub-area is predominantly newer single-family homes and includes the Cougar Ranch and Sundance developments. A large portion of vacant land in this sub-area is part of the Sundance Specific Plan. Once completed, the project will include mixed-use development consisting of residential, commercial and public facility (i.e., parks and schools) uses.
- **6th Street Corridor**. This sub-area follows the vision for a Downtown Core Area laid out in the draft Downtown Specific Plan for a higher-intensity, walkable urban core with a mix of residential, office, retail and civic land uses. The Downtown Core is bounded by 8th Street on the north, the I-10 Freeway on the south, Palm Avenue to the east, and the I-10 and the SR-60 interchange on the west. Commercial and industrial uses located along the 6th Street frontage are the predominant land uses within this sub-area. A large number of homes are also found in the sub-area, south of 8th Street.
- **6th Street Corridor Extended.** This sub-area is a continuation of the 6th Street Corridor and is bounded by 8th Street on the north, the I-10 Freeway on the south, Highland Springs Avenue on the east, and Palm Avenue to the west. Multi-family, commercial, and vacant land are the predominant land uses within this sub-area. The land use pattern in this area consists of future commercial land uses along 6th Street and future multiple family development along the south side of 8th Street.
- **Interstate Employment.** This sub-area contains large tracts of undeveloped land, farmland, and industrial development. It is located to the south of the I-10 Freeway and the Union Pacific Railroad, extends to the western City boundary, and Highland Springs Road on the east. The land use pattern in this area has the potential to accommodate future interstate employment.
- **4 Seasons/Potrero.** This sub-area is predominantly newer single-family homes and includes plans for the Seneca Springs, 4 Seasons and Potrero Creek Estates developments. Once completed, the projects will

provide single family residential housing and include diverse recreational opportunities, natural open space, and trails.

- **Urban Village**. This sub-area is predominantly north of SR-60 freeway and south of the I-10. There is an existing Urban Village Overlay that could include a regional commercial center, higher density residential development, open space, and recreational amenities. However, at this time, the sub-area is largely vacant. Industrial land uses are not presently allowed within the Urban Village Plan Overlay and any development proposals within the area would require a specific plan.
- **SunCal/Heartland.** This large sub-area is located west of the I-10 Freeway and includes areas located north of the SR-60. The majority of the sub-area is currently undeveloped, though new residential projects are planned as part of the SunCal, Heartland, and Tournament Hills and Fairway Canyon developments.
- **Jack Rabbit:** This sub-area includes the mountainous range known as the San Timoteo Badlands. This area is undeveloped and contains the western extent of SR-60 in Beaumont.
- **Mountains:** This Planning Sub-Area includes Potrero Canyon and Laborde Canyon, an area totaling more than 11,000 acres and consisting of predominantly vacant land. A portion of this site was owned by Lockheed Martin and was used as a test site for rocket motor and weapons testing from 1960 to 1974. The site was approved for County acquisition, and pending clean-up, will serve as protected open space.

FIGURE 4.5 PROPOSED GENERAL PLAN SUB-AREAS MAP



HOUSING

Beaumont has experienced significant growth in the last few decades. Over 65% of its housing stock is less than 20 years old. About one-quarter, or 26%, of land within city limits is allocated for residential use. Vacant residential land (13%) is the most common type, followed by single family residential land (12% or 3065 acres). The homes in the City were built over a long period of time. The older residential neighborhoods in the Town Center and along the 6th Street Corridor are generally more diverse in terms of residential types than the newer neighborhoods. These older neighborhoods usually contain a mixture of all types, whereas newer areas are farther away from the City center and are predominantly suburban tract housing. Less than 1% of the City's land use (80 acres) are manufactured homes – there are three mobile home parks in the City, including an age-restricted (55+) community. Similarly, multifamily housing residential makes up less than 1% of land uses within the Planning Area (29 acres). There are only three apartment communities with more than 40 units and these are all affordable housing complexes. Orchard Creek Apartments, a 143-unit community, is the largest. In addition, there is one co-op community, Beaumont Terrace, which offers 50-units of affordable housing for seniors. The newer subdivisions are located along the eastern, northern and western edges of the city.

AGE OF HOUSING UNITS

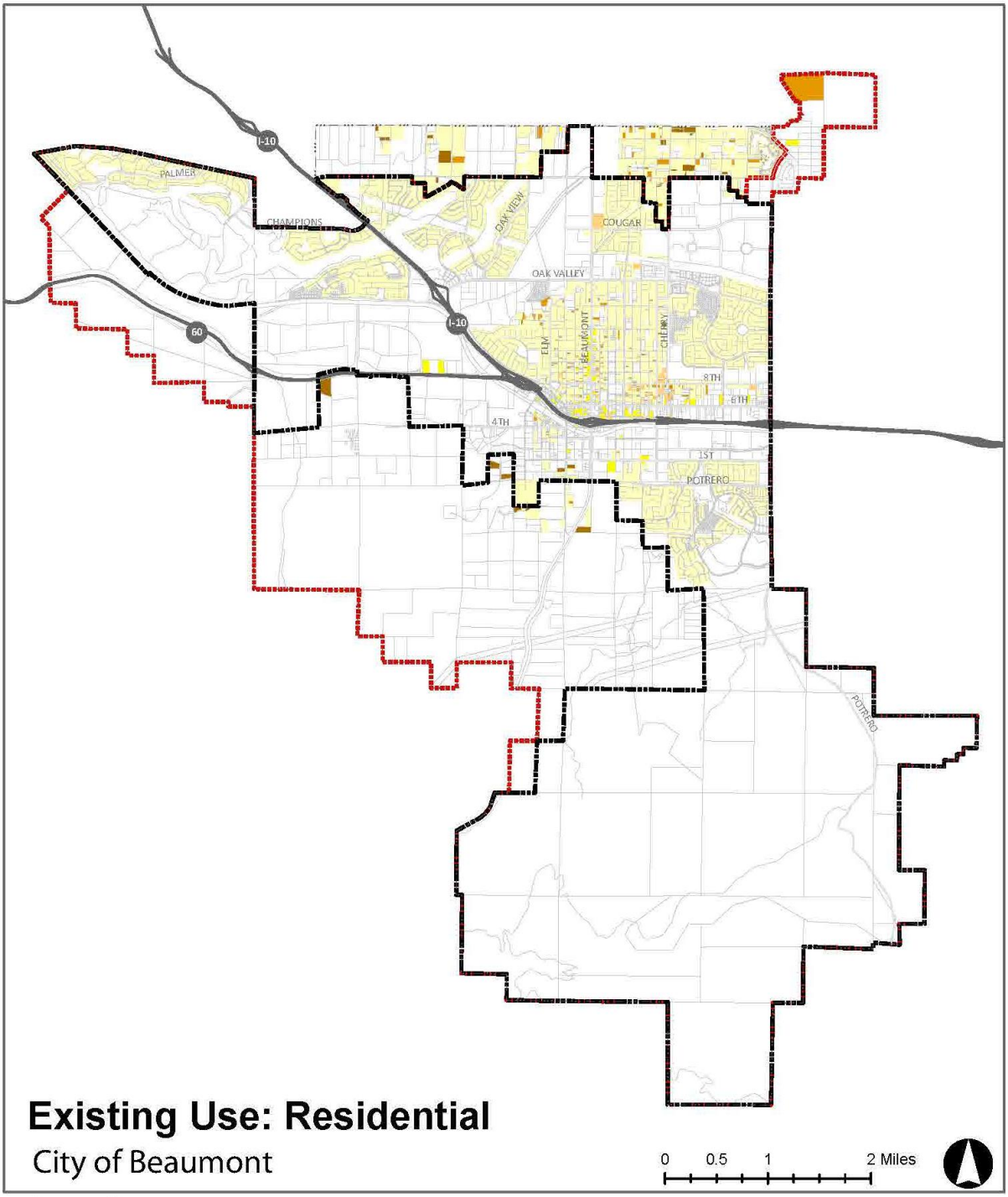
According to the 2011-2015 American Community Survey estimates, the number of homes built in the City peaked in the period between 2000 and 2009, in which 8,232 units were developed. During this period, the percentage of houses built in Beaumont (60.7%) was more than two times the units in the County (27.3%) and three times higher than neighboring Banning (17.3%). Since 2009, the percentage of housing units built in Beaumont significantly decreased, dropping to 4.3% between 2010 - 2013 and to 0.5% since 2014.

TABLE 4.1 AGE OF HOUSING UNITS

	City of Beaumont	Riverside County
Built 2014 or later	0.5%	0.1%
Built 2010 to 2013	4.3%	1.4%
Built 2000 to 2009	60.7%	27.3%
Built 1990 to 1999	5.0%	15.8%
Built 1980 to 1989	5.4%	21.6%
Built 1970 to 1979	6.7%	15.2%
Built 1960 to 1969	4.7%	8.2%
Built 1950 to 1959	7.2%	6.3%
Built 1940 to 1949	3.0%	2.0%
Built 1939 or earlier	2.5%	2.1%
Total Housing Units	13,563	815,322

Source: ACS 2011-2015 5 Year Estimates

FIGURE 4.6 EXISTING RESIDENTIAL USES



Legend

- City Boundary
- Sphere of Influence Boundary
- Planning Area Boundary
- Highways
- Major Roads
- Local Roads
- Single Family on CM zone
- Single Family Residential
- Multi-Family R3
- Multi-Family Residential 2 to 3
- Manufactured Home

Data Sources: City of Beaumont GIS data, Riverside County GIS data, 2015 ESRI, World Terrain Base

HOUSING TENURE & OCCUPANCY

Housing tenure refers to whether a unit is owner-occupied or rented. A housing unit refers to a house, apartment, group of rooms, or single room; the unit is considered occupied if it operates as separate living quarters and is currently occupied. According to the American Community Survey, 94.1% of housing units are occupied and 5.9% are vacant In Beaumont. Riverside County has 85.8% of units occupied and 14.2% vacant. Of the 12,579 housing units that are occupied, 75.3% are owner-occupied and 24.3% are renter-occupied. Compared to Riverside County, the City of Beaumont has a higher rate of owner-occupied housing units (64.8%) and lower rate of renter-occupied housing units (35.2%).

TABLE 4.2 HOUSING TENURE & OCCUPANCY[10]

	City of Beaumont	Riverside County
Housing Tenure		
Owner-occupied	75.3%	64.8%
Renter-occupied	24.7%	35.2%
Housing Occupancy		
Occupied housing units	94.1%	85.8%
Vacant housing units	5.9%	14.2%
Total Housing Units	**13,563**	**815,322**

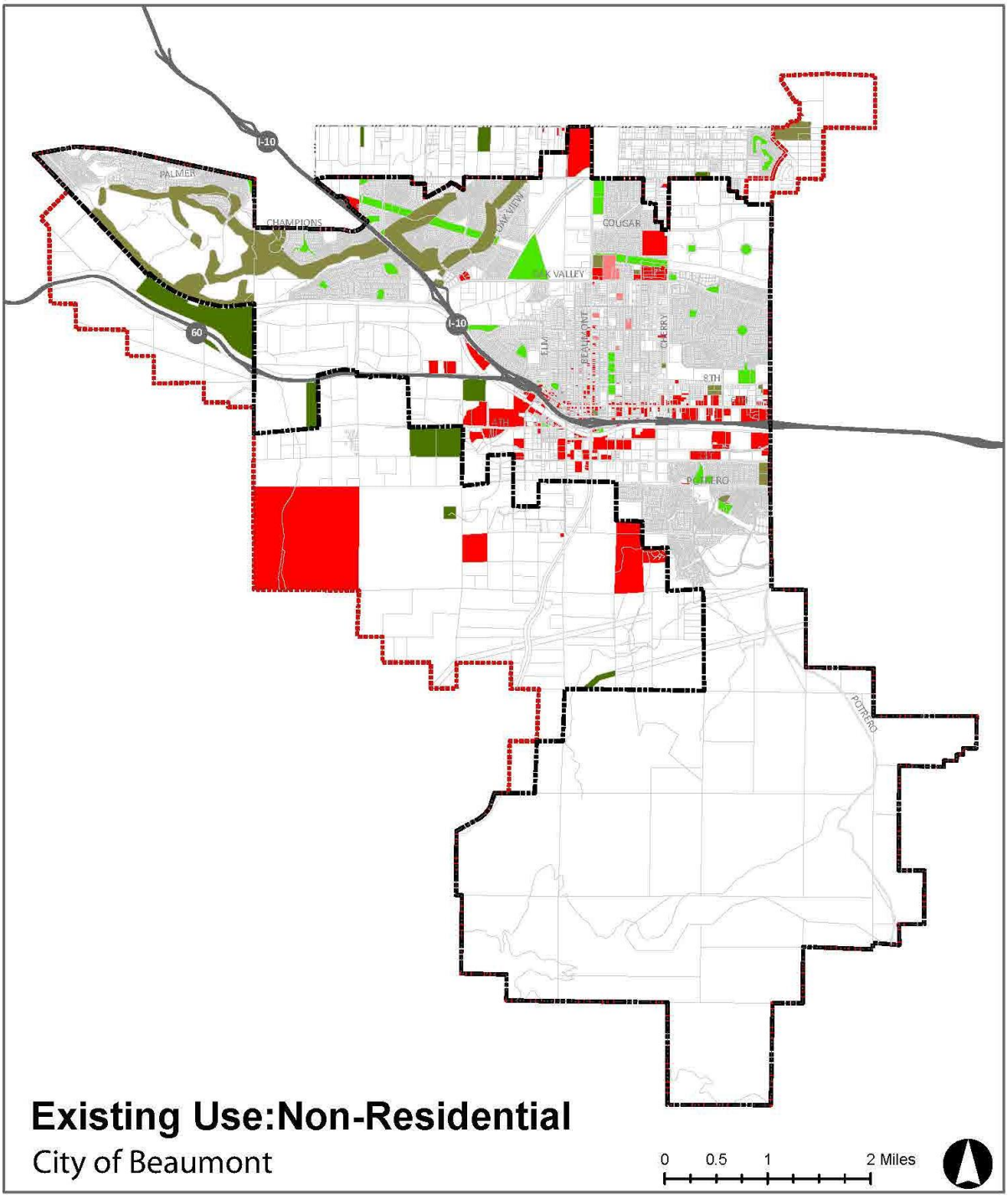
Source: ACS 2011-2015 5-year Estimates, Selected Housing Characteristics

NON-RESIDENTIAL USES

Non-residential uses make up almost 10% of the Planning Area. The County Assessor Parcel Data provides little distinction, so it is hard to parse the data into smaller trends. Commercial uses, which also include industrial uses and some institutional uses, comprise approximately 5.7% of the Planning Area (1530 acres). Retail and industrial uses are primarily located along the city's freeways and boulevards. The city also has approximately 358 acres of farmland (1.33% of the Planning Area). Finally, the City has approximately 737 acres of private recreational uses. Primarily, these uses are comprised almost entirely of private golf courses.

[10] Tables 4.2, 4.3 and 4.4 and Figure 4.8 are based on best available data from the City in 2016.

FIGURE 4.7 EXISTING NON-RESIDENTIAL USES



Data Sources: City of Beaumont GIS data, Riverside County GIS data, 2015 ESRI, World Terrain Base

DEVELOPMENT PATTERNS

Beaumont has been accommodating its spike in population growth with the construction of several new master planned communities, including Oak Valley Greens, Three Rings Ranch, Solera, Sundance and Tournament Hills that are comprised of over 25,000 new residential units. New arterial roads and freeway intersections are also under development. There are currently 50 development projects in Beaumont that are currently under construction, entitled projects not yet in constructions, recently completed. Development is not clustered in one particular area, rather, there are projects located throughout the Planning Area and on both sides of Interstate 10 and on both the east and west sides of the City. Of the projects, currently under development: Fairway Canyon is located in the northwest, Sundance is located to the northeast, the Four Seasons is in the Southwest, and Heartland is located in the West. The projects under development will bring a combined total of 10,659 new dwelling units, which is critical for accommodating Beaumont's burgeoning population growth.

TABLE 4.3 PROJECTS CURRENTLY UNDER CONSTRUCTION

Project	Residential Acreage	Commercial/ Industrial Acreage	Number of Dwelling Units
Sundance	886.85	4450	4450
Fairway Canyon	678.00	46.4	3300
Four Seasons	365.30	-	1890
Heartland	207.60	61.80	981
Seasons at Beaumont	1.30	-	38
Rolling Hills Ranch	-	155.00	-
Total	**2139.05**	**276.05**	**10,659**

TABLE 4.4 ENTITLED PROJECTS NOT YET IN CONSTRUCTION

Project	Residential Acreage	Commercial/ Industrial Acreage	Number of Dwelling Units
Kirkwood Ranch	128.00	-	403
Potrero Creek Estates	307.80	-	700
Tract No. 32850	29.09	-	95
Noble Creek Vistas	222.50	-	648
Hidden Canyon Industrial	-	158.83	-
Sunny-Cal Specific Plan	216.05	10.08	571
Tournament Hills	63.56		279
Beaumont Commercial Center	-	7.07	-
Sundance Corporate Center	-	13.6	-
Total	**967.00**	**189.58**	**13,355**

FIGURE 4.8 CURRENT AND RECENTLY BUILT DEVELOPMENT PROJECTS

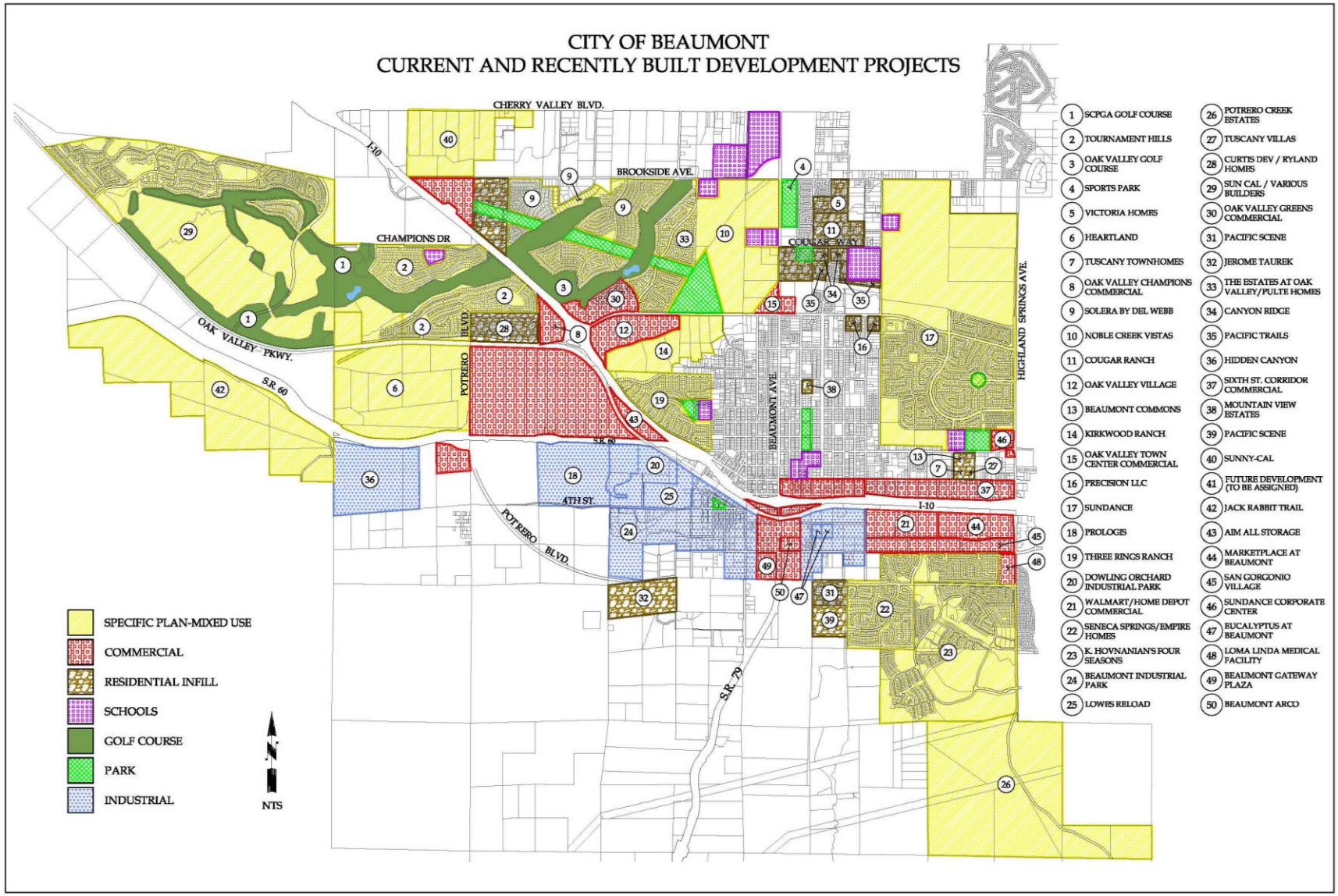
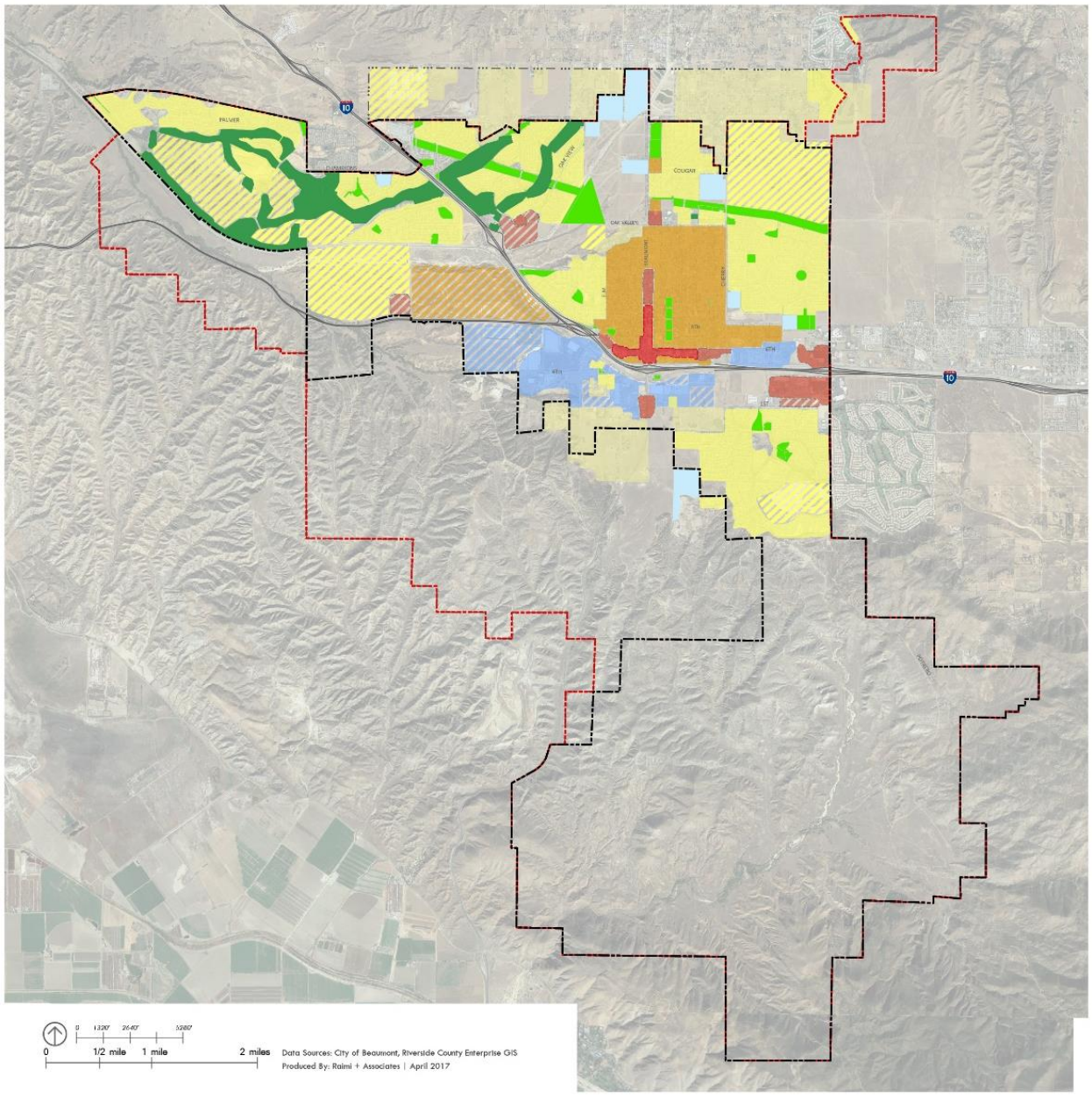


FIGURE 4.9 DEVELOPMENT PATTERN MAP



Development Pattern

- Town Neighborhood
- Planned Town Neighborhood
- Town Center
- Surburban Neighborhood
- Planned Surburban Neighborhood
- Suburban Center
- Planned Suburban Center
- Rural Neighborhood
- Employment District
- Planned Employment District
- Recreational Commercial/Golf
- Major Parks/Open Space
- City Properties
- Schools
- Sphere of Influence Boundary
- City Boundary
- County Areas to be Annexed

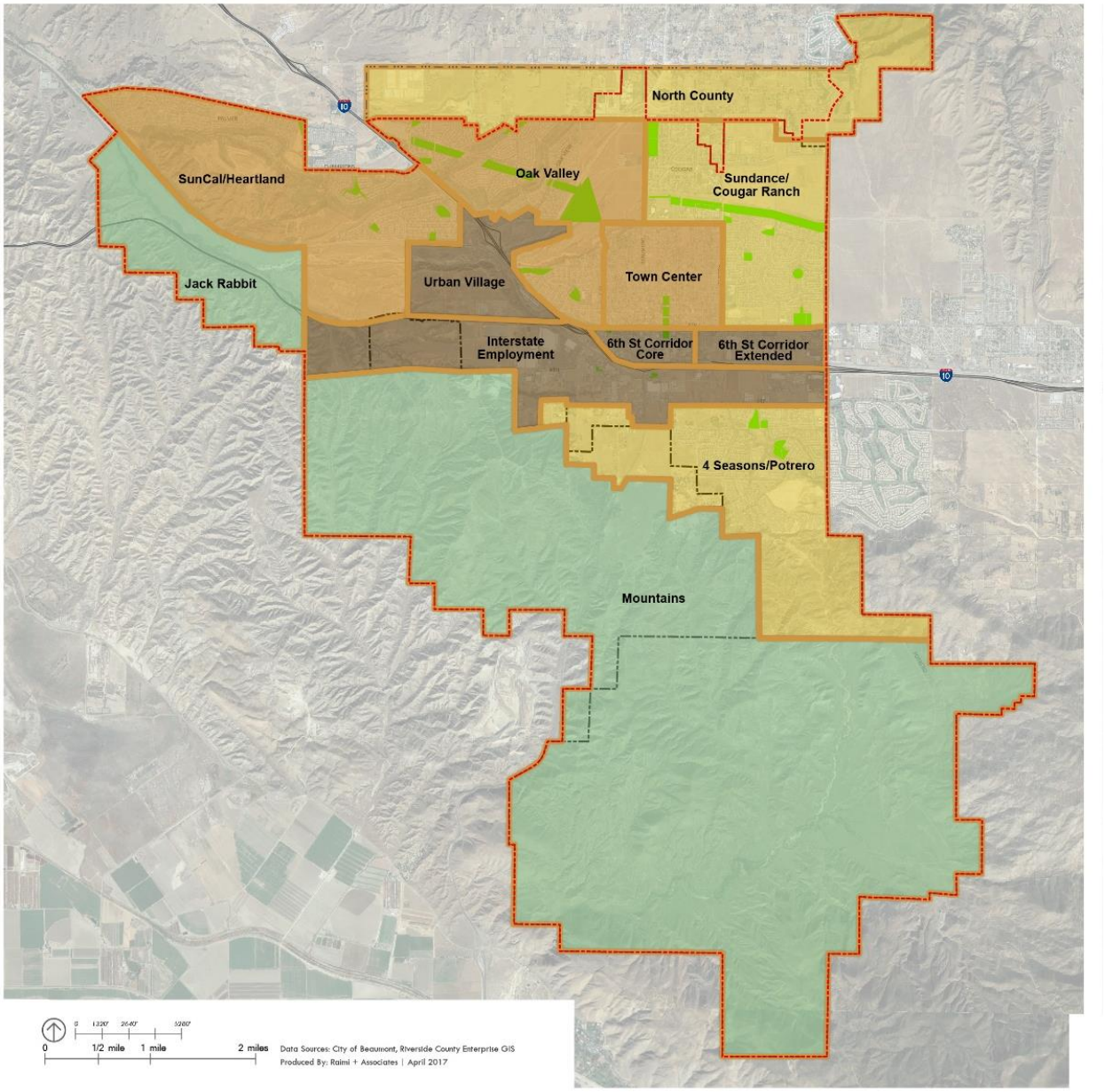
DEVELOPMENT OPPORTUNITY AREAS

- Based on the analysis of neighborhoods, districts and corridors, the City can be characterized into four categories reflecting the types of change or development potential that might be realized during the horizon of the General Plan. The four categories are:
- **Maintain.** Areas of the City where the general character of the area will likely remain the same, but some limited improvements might occur. This may include, but is not limited to, improvements to the public realm, addition of community facilities, or the introduction of neighborhood-serving uses that are desired, but currently absent.
- **Enhance.** Areas of the City where change might be desired or necessary to the public and private realms and where change will happen gradually over the entire horizon of the General Plan and beyond.
- **Evolve/Transform.** Areas where there may be the most potential or desire for significant change in the short to middle term (approximately five to ten years). These areas may look very different in a short period of time.
- **Preserve.** Areas of the City that are most likely to remain as preserved land, including uses designated for open space, regional recreation, and habitat protection.
- The purpose of this classification is to begin a discussion on the level and type of change expected or desired in each area of the City, as well as providing a general idea of where new development should or could be directed. The map and table that follow shows the potential opportunity available or likely nature of change in each sub-area.

TABLE 4.5 GENERAL PLAN PLANNING SUB-AREAS

Planning Area	Maintain	Enhance	Evolve/Transform	Preserve
Town Center		X		
6th street core			X	
6th street extended			X	
Urban village			X	
Oak valley		X		
Interstate Employment			X	
Sundance/Cougar Ranch	X			
SunCal/heartland		X		
North county	X			
4 Seasons/Potrero	X			
Mountains				X
Jack Rabbit				X

FIGURE 4.10 DEVELOPMENT OPPORTUNITIES MAP



Development Opportunities

- Maintain
- Enhance
- Evolve/Transform
- Preserve

- Sphere of Influence Boundary
- City Boundary
- County Areas to be Annexed

CITY STRUCTURE

Neighborhoods, districts, and corridors are the fundamental components of all cities. Mapping these components of a city help to provide an understanding of how people live, shop, work, play, and get around in their communities.

Neighborhoods are the basic building block of great cities. At their core, neighborhoods are the places where we live and are typically mostly residential. Complete neighborhoods are developed areas with a balanced mix of human activity with uses including dwellings, workplaces, shops, civic buildings, and parks. A neighborhood should mix a variety of residential types within a walkable network of green streets and parks, well-connected to parks, schools and neighborhood centers to serve daily shopping needs.

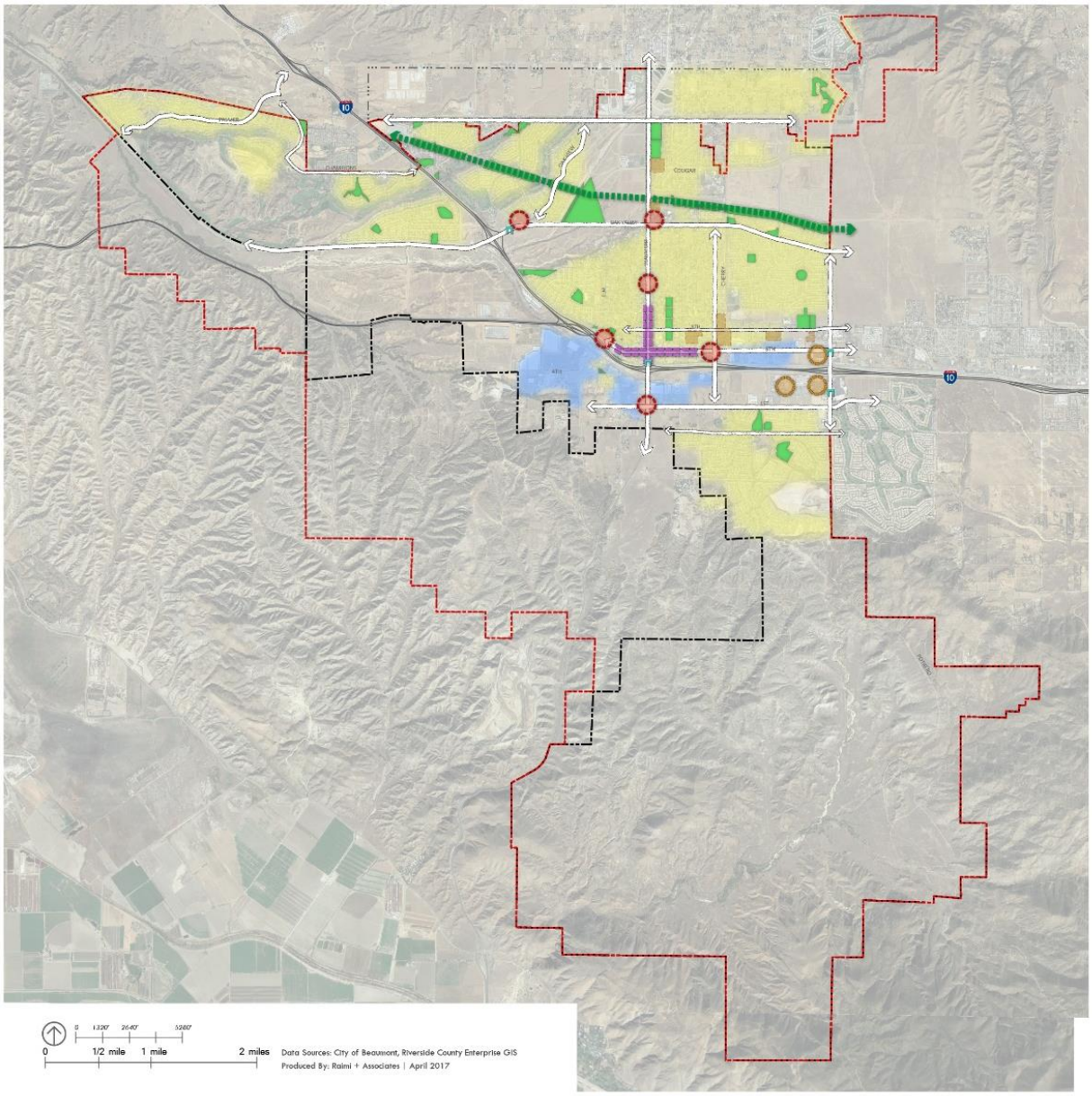
Districts are areas of the city that are functionally specialized with supportive uses without being rigorously regulated to a single use, such as a shopping center. One of the best examples of a district are downtowns (and similarly referred to on Figure 4.11 as the Downtown Core) in which a retail specialization once occurred, but in concert with supporting residential, office, and institutional uses. Districts play an important role in a city since they are typically the primary retail and entertainment areas, and provide jobs and economic development opportunities.

Centers are the primary places of commerce, neighborhood-serving retail, arts and culture and civic activities. In Beaumont, centers are areas of the City which are characterized by a specialization of a single non-residential use. Here, those uses are almost universally retail and commercial service. Centers serve an important function in the city, functioning both as a place to shop, gather, and seek entertainment. The city's industrial areas also serve in a similar fashion, acting as an employment center with limited supporting uses.

Corridors are both the separators of neighborhoods and districts and the viaducts by which people move throughout town. Corridors take many shapes and forms and, as a primary component of the public realm, also serve different transportation and placemaking purposes. In some cases, such as 6th Street through Downtown, corridors have more permeable edges and are readily accessed from the adjacent neighborhoods and districts. In cases where corridors have very high connectivity to surrounding areas, corridors function as "to" places in which people gather and congregate, such as the case with the prototypical Main Street. In other cases, such as along the edges of the newer master planned communities or with conventional arterials, corridors have very limited connectivity to the adjacent areas and serve primarily to move cars. In these limited-access cases, corridors serve primarily as "through" places and a great emphasis is put on efficient automobile operations.

These components of cities can be further defined to convey the type of place or use as is shown in Figure 4.11, City Structure. The existing pattern of land use in the City includes residential, mixed-use, commercial, and open space largely oriented around the east-west regional transportation facilities that bisect the City. The design of districts, neighborhoods, and corridors can actively shape the creation of a town with great accessibility and connectivity. The City Structure map below includes the City's downtown core and the existing network of commercial, residential, and employment centers, in addition to parks and open space. In a compact and walkable environment, centers are characterized by the urban and walkable character and their mix of uses. Gateways can also help make entrance points into the City more prominent and enhanced by using design features unique to the City, such as monuments, gateway markers, art, or signage.

FIGURE 4.11 CITY STRUCTURE MAP



ACCESSIBILITY AND CONNECTIVITY

The pattern in which a place is developed in terms of the street layout, block size, and arrangement of uses, can have a profound effect on how that place functions and heavily influence the day-to-day choices of the people who live, work, shop, and play in that place. For example, neighborhoods with high levels of internal connectivity to community services, including parks, schools, and retail, can provide residents with multiple options on how to get to their destination, both in terms of route and mode (drive, walk, or bike). In turn, such a design can promote transportation efficiency, encourage daily physical activity, and powerfully shape an inviting pedestrian environment. Factors such as a predominance of cul-de-sacs, dead end streets, and a lack of pedestrian connections can similarly shape how we live by largely limiting transportation choices to automobiles.

STREETSCAPE QUALITY AND PEDESTRIAN NETWORK

The layout and quality of the streetscape varies significantly by neighborhood. In some older residential neighborhoods, sidewalks are separated from roadways by landscaped parkways, often incorporating grass and shade trees. In the newer residential areas, sidewalks are typically adjacent to the curb and gutter while landscaping is minimal.

Sidewalks are generally continuous in the residential neighborhoods, though there are occasionally gaps in connectivity between neighborhoods and even from block to block. Older neighborhoods tend to feature better connectivity between blocks, but lack a continuous style or layout. Walkway widths, setback from roadway, landscaping and disabled person's access all vary. In general, the pedestrian network in these older neighborhoods could be considered safer and more walkable. The main component missing is favorable destinations; houses, schools and parks are connected and within walking distance but food service and commercial developments are still focused outside of these residential areas, requiring residents to either walk in a less pedestrian-friendly environment or use another form of transportation. Outside of residential and commercial core areas, sidewalks are not common.

Crosswalks are common at intersections of higher volume streets throughout the City. They are less common at intersections of residential streets and collectors/arterials. Crosswalks are also much more prevalent in the vicinity of parks and schools.

BLOCK SIZE

Block size is an important factor in determining how walkable an area is and what reasonable transportation choices we have: larger blocks tend to be less walkable and more automobile oriented, smaller blocks tend to facilitate more walking. Block size also tends to influence parcel size and, together, block size and parcel size can influence the type of development and businesses that locate in an area. An examination of the block sizes in Beaumont demonstrates three major block size variations in the City:

- Small, walkable blocks that are less than 2 acres in size (average block size of 1.2 acres) dominate the older, central areas of the City proper and make up about 30% of the City area.
- Moderate blocks of 3 to 25 acres predominate in the City (57%) and are most common in the suburban expansions along edges of the City proper (average block size of 7.3 acres).
- Superblocks larger than 26 acres are found dispersed across the City and largely include entitled land that that is not currently developed (average block size of 123.5 acres).

Block size varies in Beaumont, primarily by age. Older residential neighborhoods and commercial areas, such as the downtown core, feature smaller blocks laid out in a traditional grid pattern. The average distance between intersections in the downtown core and surrounding neighborhoods is 375 to 500 feet. The road system is uniform

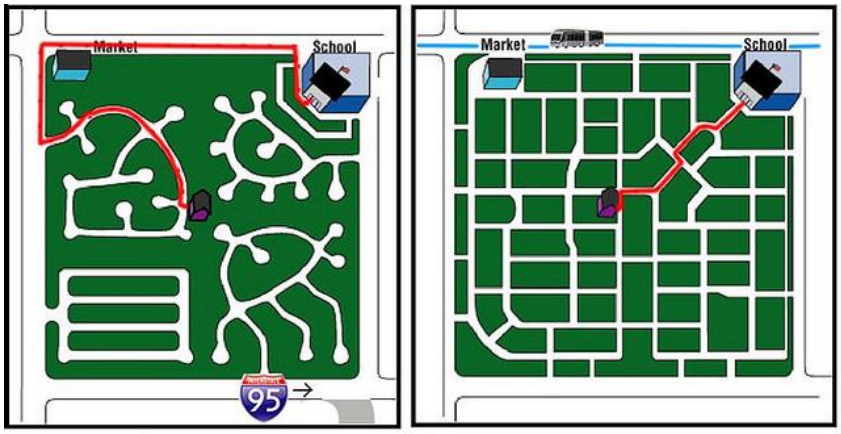
and the intersection distance doesn't typically exceed 500 feet. A commonly used measure for walkable neighborhoods is an intersection distance of 500 feet, indicting the Downtown has great potential as a walkable place. Further away from downtown, block sizes increase and cul-de-sacs become more common.

Newer residential developments seem to commonly feature an internal road network that is isolated from the arterial roadways providing access to the site except for occasional entries and exits mid-block. These roads rarely form a connected grid pattern, and as a result, travel distances between homes is increased, and access to the major roadways is often limited to a few points for the entire development. The analysis of the City shows moderate to low connectivity within these newer neighborhoods. The resulting intersection spacing can exceed 1200 feet. This configuration is commonly known as a "superblock", where arterial roads surround an independent residential neighborhood. However, in these areas pedestrian connectivity outside the neighborhood is lacking. Walls along property lines prevent access to connector roads and arterials from homes directly adjacent to the roads, and pedestrian paths are not common.

Recent commercial developments are typically built on large lots and feature a big, central parking lot serving all businesses, creating large blocks. In the rural and industrial areas, blocks can grow very large, having little to no internal circulation between the arterials and through streets.

INTERSECTION DENSITY

Intersection density works hand in hand with block size to influence how a place looks and feels and how people get around. The design of a more compact and connected neighborhood street network impacts whether people walk and bike, in addition to how much they drive. A walkable neighborhood facilitates direct travel between destinations and can have powerful impacts on health, including the prevention of obesity, heart disease, and diabetes.



Driving-only transportation pattern

Walkable connected transporation network

ACCESSIBILITY TO PARKS

Parks can have significant impacts on residents' health and well-being. The close proximity of parks and recreation services encourages use, physical activity, and mental health benefits. Quality access to parks includes availability near homes, in addition to safe, engaging, and user-friendly facilities. Access to parks in Beaumont is generally high - 55% of all residents have access to a park within a quarter-mile and 82% have access to a park within a half mile.

ACCESSIBILITY TO SCHOOLS

The location of school facilities is important to ensuring student access, in addition to safe access to school. The school zone generally extends from the front door of the facility and includes any blocks that generate a high concentration of school-generated traffic. The walking boundary is typically no more than a mile-out from a school. Walking access to schools in Beaumont is generally low at a quarter-mile (15%) and half-mile (35%) distance from all schools.

ACCESSIBILITY TO RETAIL

Neighborhood retail has a profound effect on people's desire to live in urban neighborhoods and communities. The convenience and availability of a variety of goods and services can play an important role in how people choose where to live and the economic sustainability of the area. Access to retail in Beaumont is moderate with 17% of all residents within a quarter-mile and 37% within a half mile distance.

WALKABILITY

The above discussions about accessibility, connectivity, and pedestrian environment are important variables describing whether a place is walkable. There are many benefits to living in a walkable urban environment. Economic benefits include higher property values, increased private investment, and tourism. In addition, people residing in neighborhoods with mixed land use typically engage in more total physical activity than those in single-use neighborhoods. The combination of high connectivity, high population density, and mixed land use, where residents live in proximity to services and amenities, can powerfully stimulate the local economy. For the past several decades, most places were developed to prioritize the automobile as the primary mode of travel. However, in recent years, there has been a great resurgence and interest in walkable neighborhoods and shopping and entertainment districts. In part, this is fueled by demographic shifts as the Baby Boomers retire and the Millennials establish themselves in the world. For a variety of different reasons, both generations are seeking walkable places. Communities without walkable environments will likely struggle to remain competitive as these two large generations choose to live and shop in places that are not automobile dependent. Beaumont's Downtown and the 2007 General Plan's vision for an Urban Village are two examples of such a concept in the city.

FIGURE 4.12 BLOCK SIZE MAP

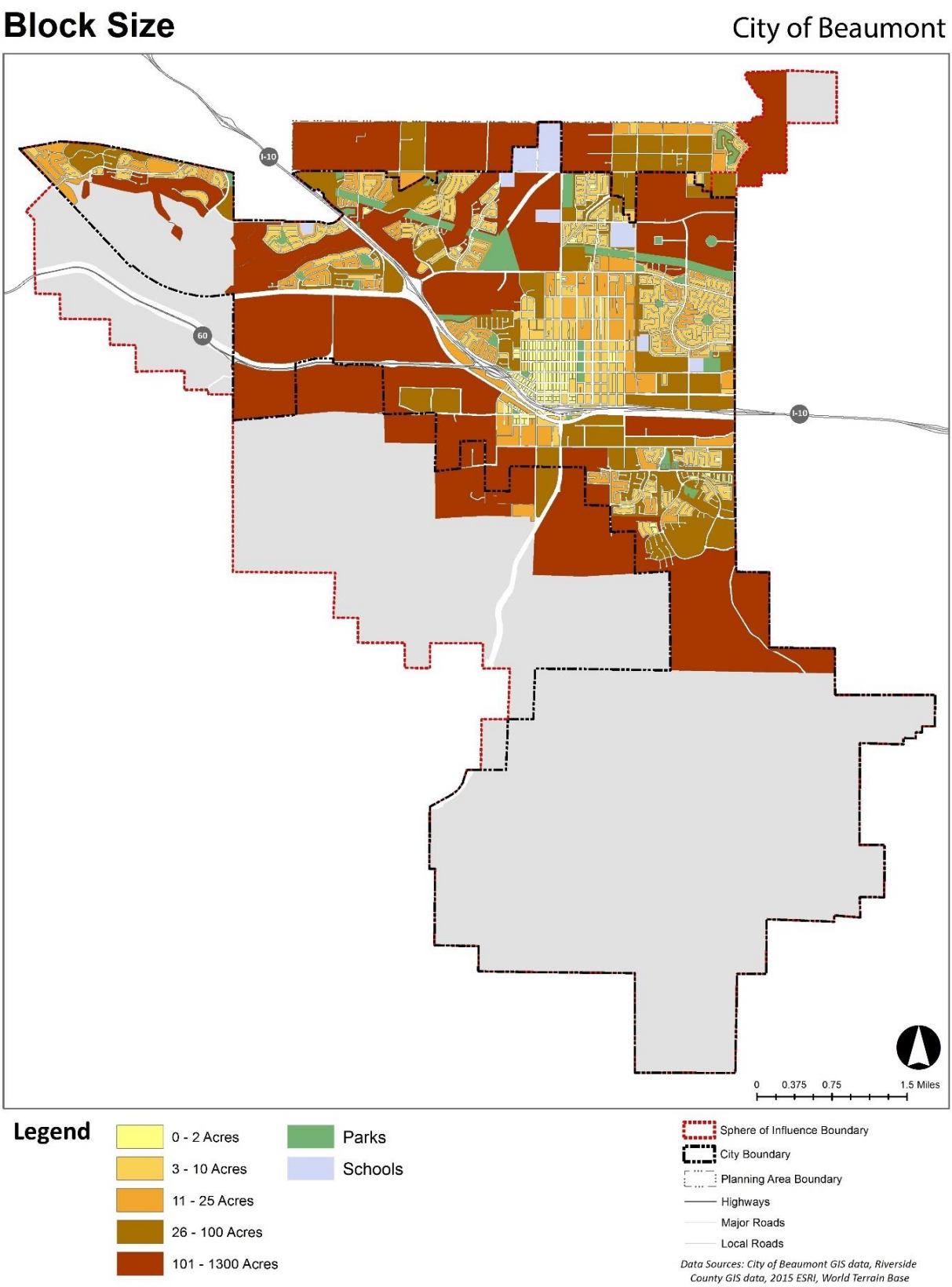


FIGURE 4.13 ACCESS TO PARKS MAP

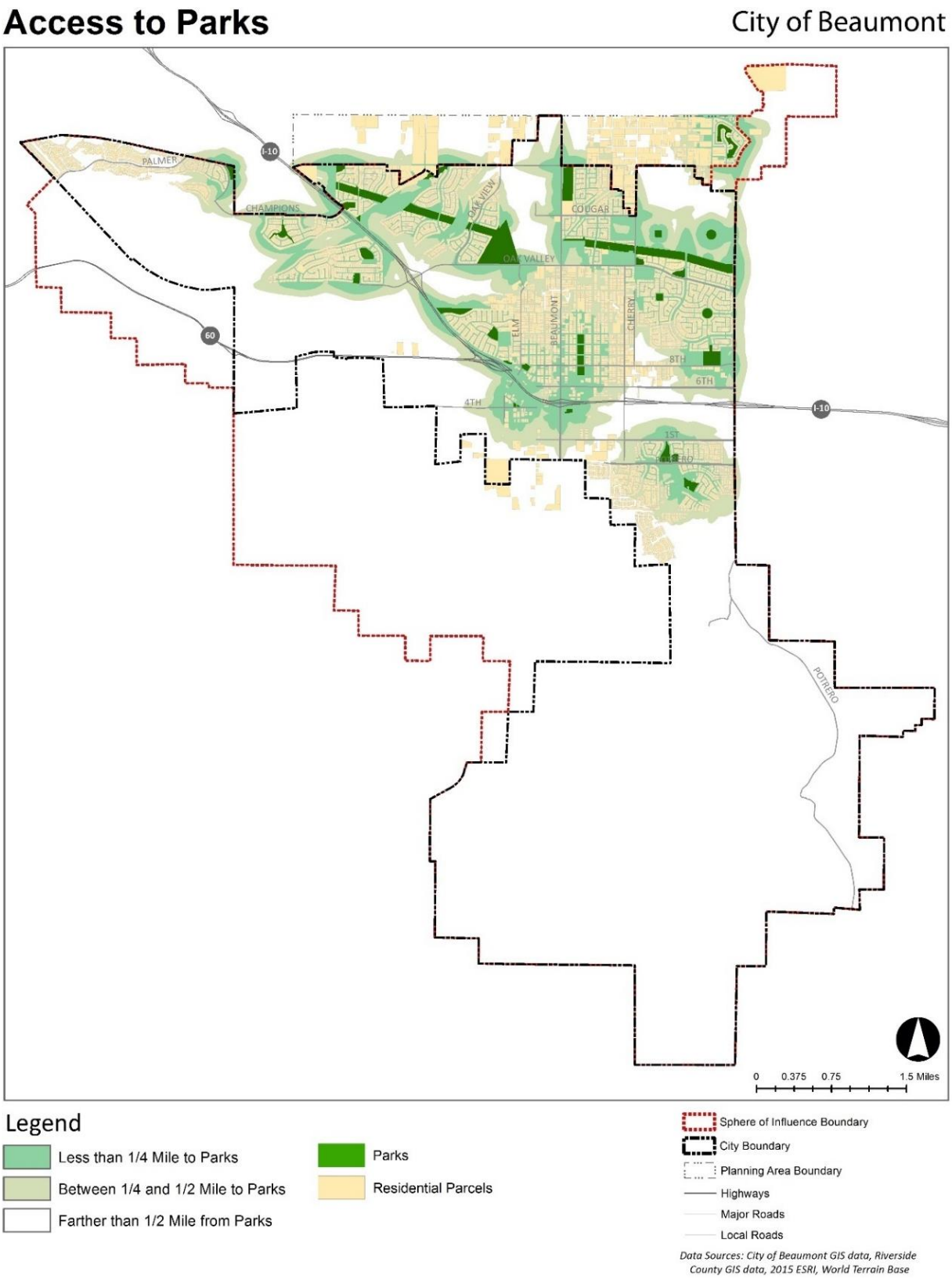


FIGURE 4.14 ACCESS TO SCHOOLS MAP

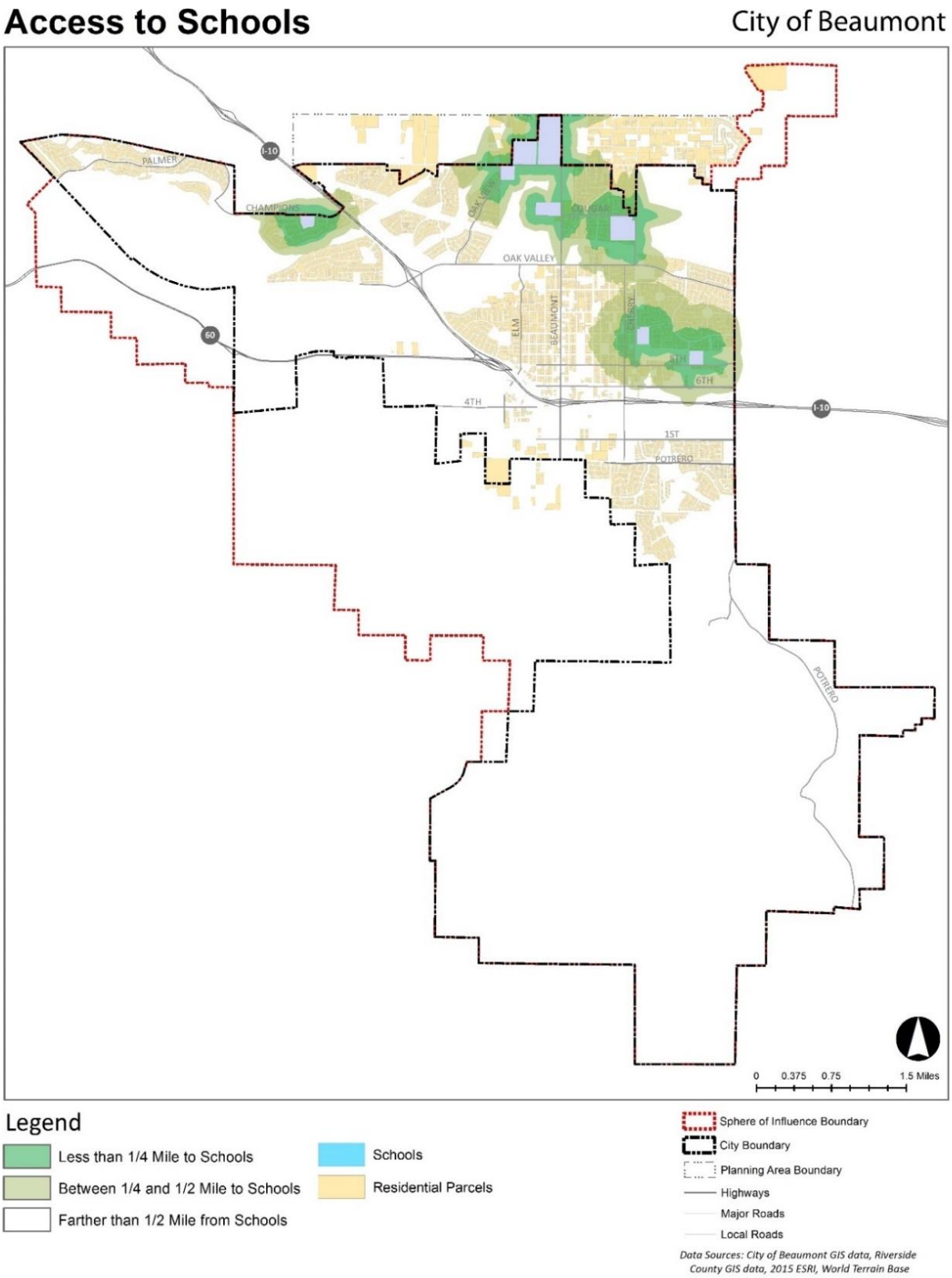


FIGURE 4.15 ACCESS TO RETAIL MAP

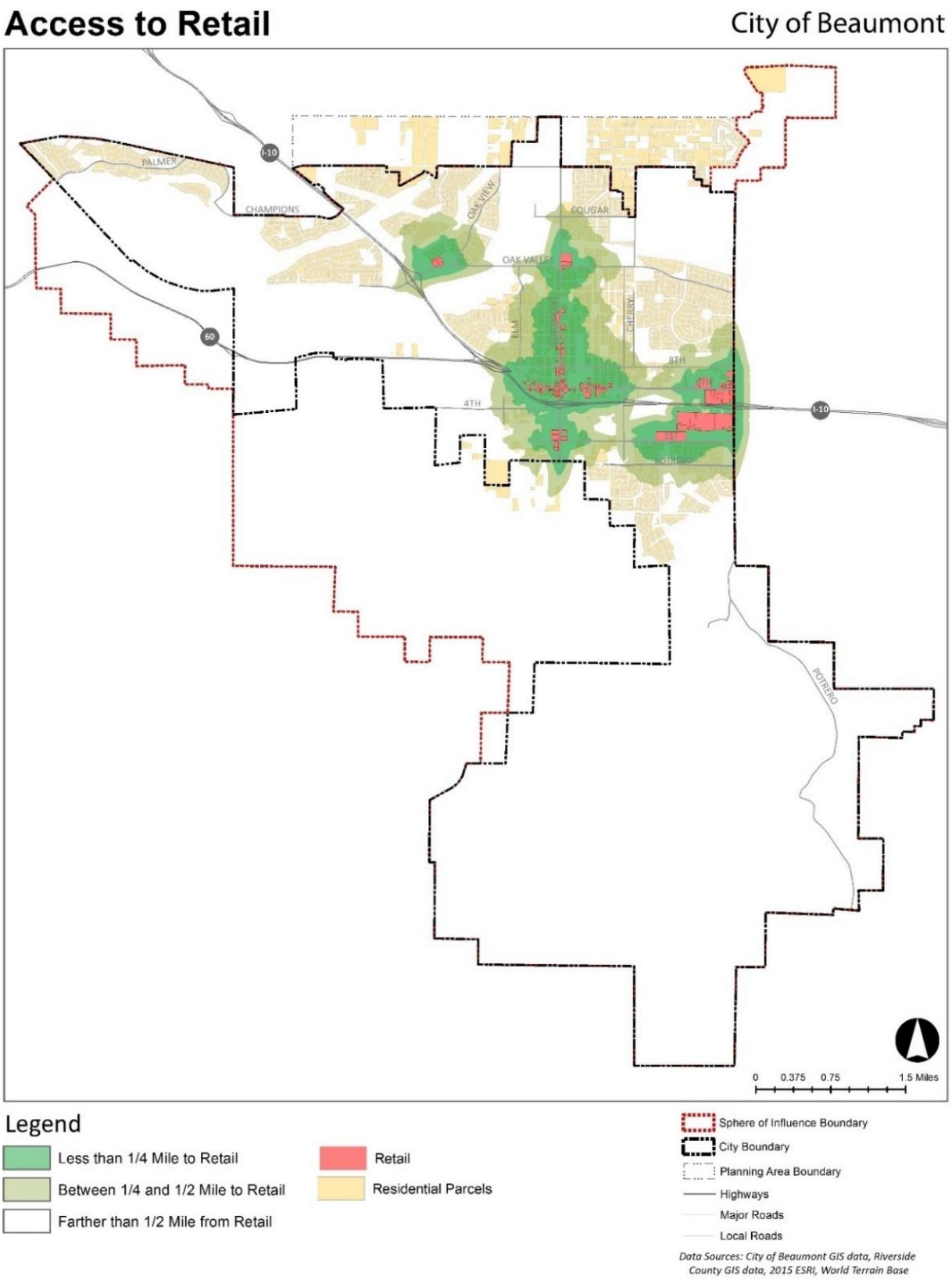
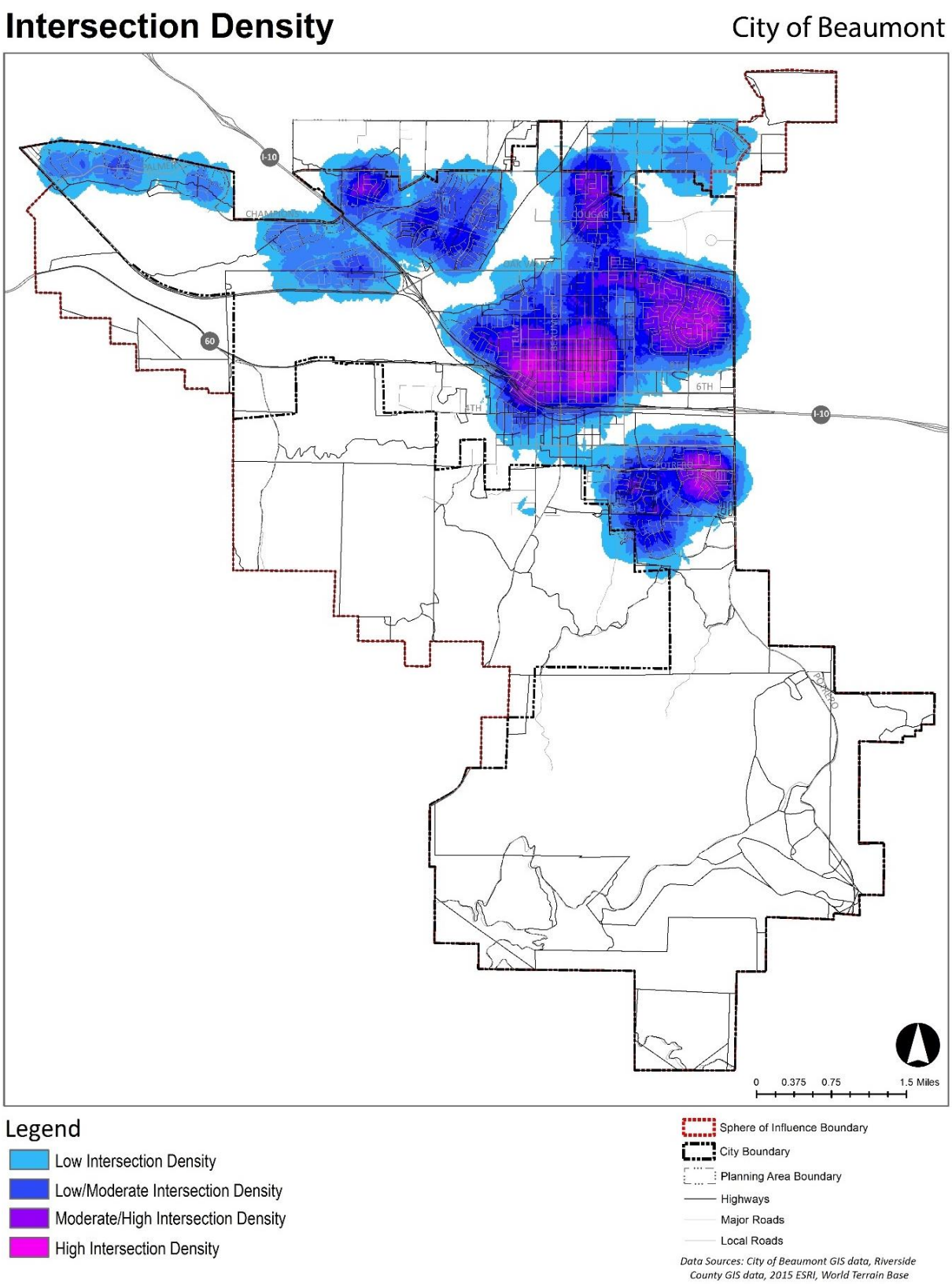


FIGURE 4.16 INTERSECTION DENSITY MAP



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5. HOW WE GET AROUND

OVERVIEW

Beaumont is located in Riverside County and is surrounded by San Jacinto to the south, Calimesa to the North, and Banning to the west. This section identifies the existing transportation system and provides recommendations to further enhance mobility. Beaumont's transportation system includes travel lanes, bicycle lanes, sidewalks, trails, and bus transit.

KEY ISSUES

Employment data for the City provides an important framework for considering key issues relevant to transportation. The following summarizes key takeaways for this chapter:

- There is a lower than expected jobs-to-household ratio. Residents are likely traveling outside of the City for many services (likely both retail and non-retail).
- Residents and employees in the City likely travel longer distances for work and for services compared to other incorporated cities in the region.

ANALYSIS

HOUSING-EMPLOYMENT DYNAMICS

According to the 2015 American Community Survey and the 2015 Longitudinal Employer-Household Dynamics Origin Destination Employment Statics, the City of Beaumont currently includes 41,000 residents. There are approximately 5,800 jobs in Beaumont, representing a job-to-housing ratio of 0.45. In addition, working residents have the following travel patterns:

- 35% of residents travel between ten and 25 miles to reach their employment
- 45% of residents travel 25 miles or more to reach their employment

The majority of these travel West and utilize Interstate 10 and State Route 60. Approximately 22% of the people employed by businesses in the City of Beaumont reside outside of the City. Additionally, as noted above, the City has a job-to-housing ratio of 0.45 (where we would typically expect to see that ratio closer to 1.0 or even slightly higher). The employment dynamic indicates that Beaumont may not be capturing its fair share of the employment market.

ROADWAY SYSTEM

EXISTING STREET SYSTEM

The existing City of Beaumont General Plan's Circulation Element (2007, City of Beaumont) designates eight different roadway classifications: Expressway Corridor, Urban Arterial, Augmented Major Highway, Arterial Highway, Major Roadway, Secondary Street, Collector Street, and Local Streets. Table 5.1 outlines the roadway classification standards from the current circulation element. Figure 5.2 illustrates the number of lanes based on the current roadway network.

The current system reflects a focus on automobile movement, which will be revisited as part of the General Plan update. Table 5-1 displays the roadway classification standards from the General Plan Circulation Elements.

As shown on the figures, much of the City's envisioned roadway network has been completed. However, the following key roadways have not yet been completed:

- Cherry Valley Boulevard extension to SR-60
- Completion of Potrero Boulevard
- Completion of 2nd Street
- Cougar Way extension to 11th Street
- Starlight Avenue extension north
- 4th Street extension
- Other roadways providing access to future developments

TABLE 5.1 ROADWAY CLASSIFICATION STANDARDS

	Travel Lanes	Parking Lanes	Right of Way	Pavement Width	Typical Volumes (ADT)
Expressway Corridor	6 to 8	0	120' – 134'	110'-118'	60,000+
Urban Arterial	6	0	120' – 134'	102'	50,000+
Augmented Major Highway	6	0	110'	92'	50,000+
Arterial Highway	6	0	110'	86'	40,000+
Major Roadways	4	0-2	100'	70'-76'	40,000
Secondary Streets	4	0-2	76-88'	56'-64'	25,000
Collector Streets	4	0-2	66'-78'	44'-56'	25,000
Local Streets	2	0-2			2,000

Note: ADT refers to average daily traffic volumes.

Source: City of Beaumont General Plan Circulation Element, 2007

FIGURE 5.1 CURRENT GENERAL PLAN ROADWAY CLASSIFICATIONS

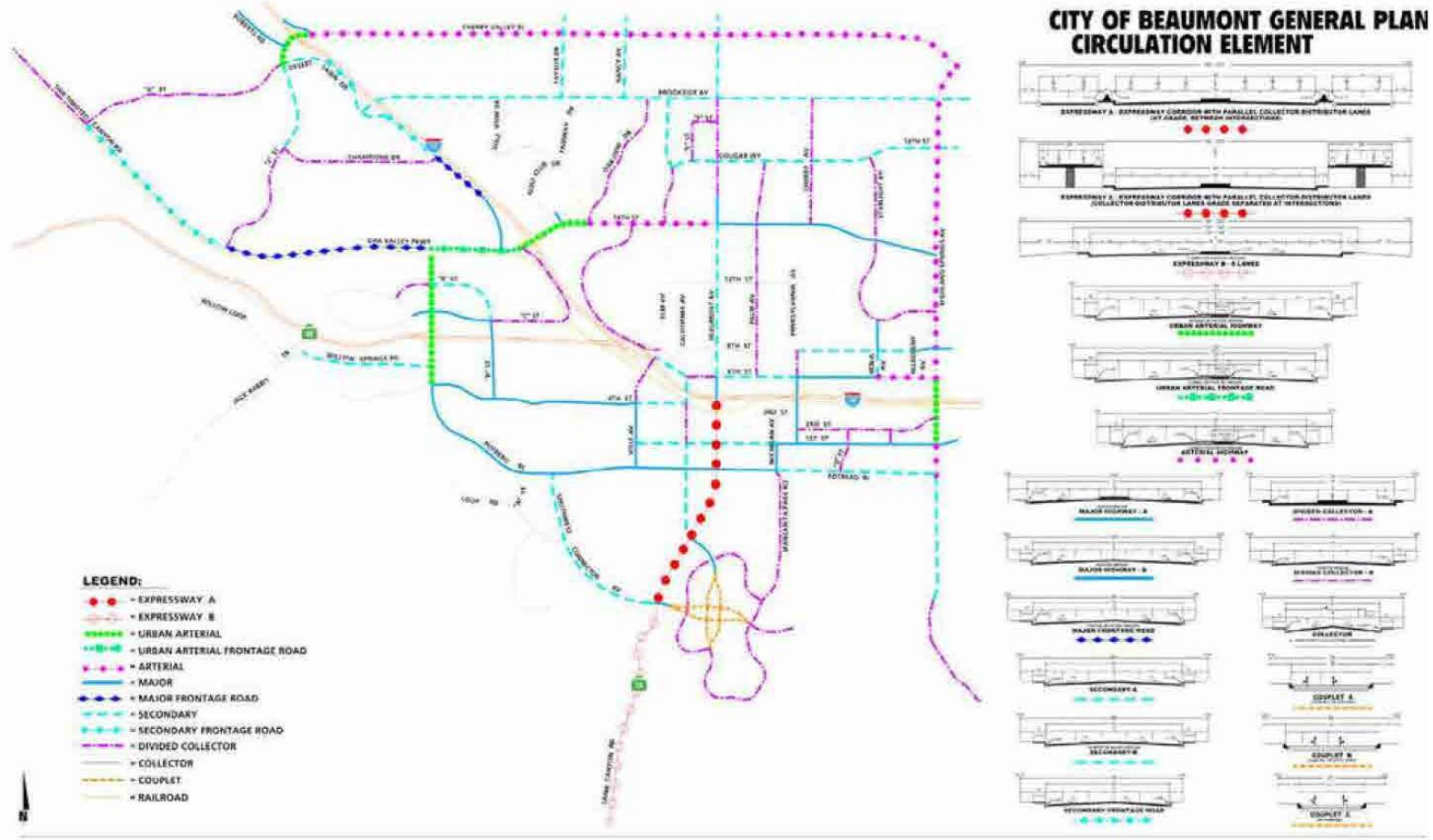


Figure 3-1
Roadway Classification

FIGURE 5.2 NUMBER OF ROADWAY LANES

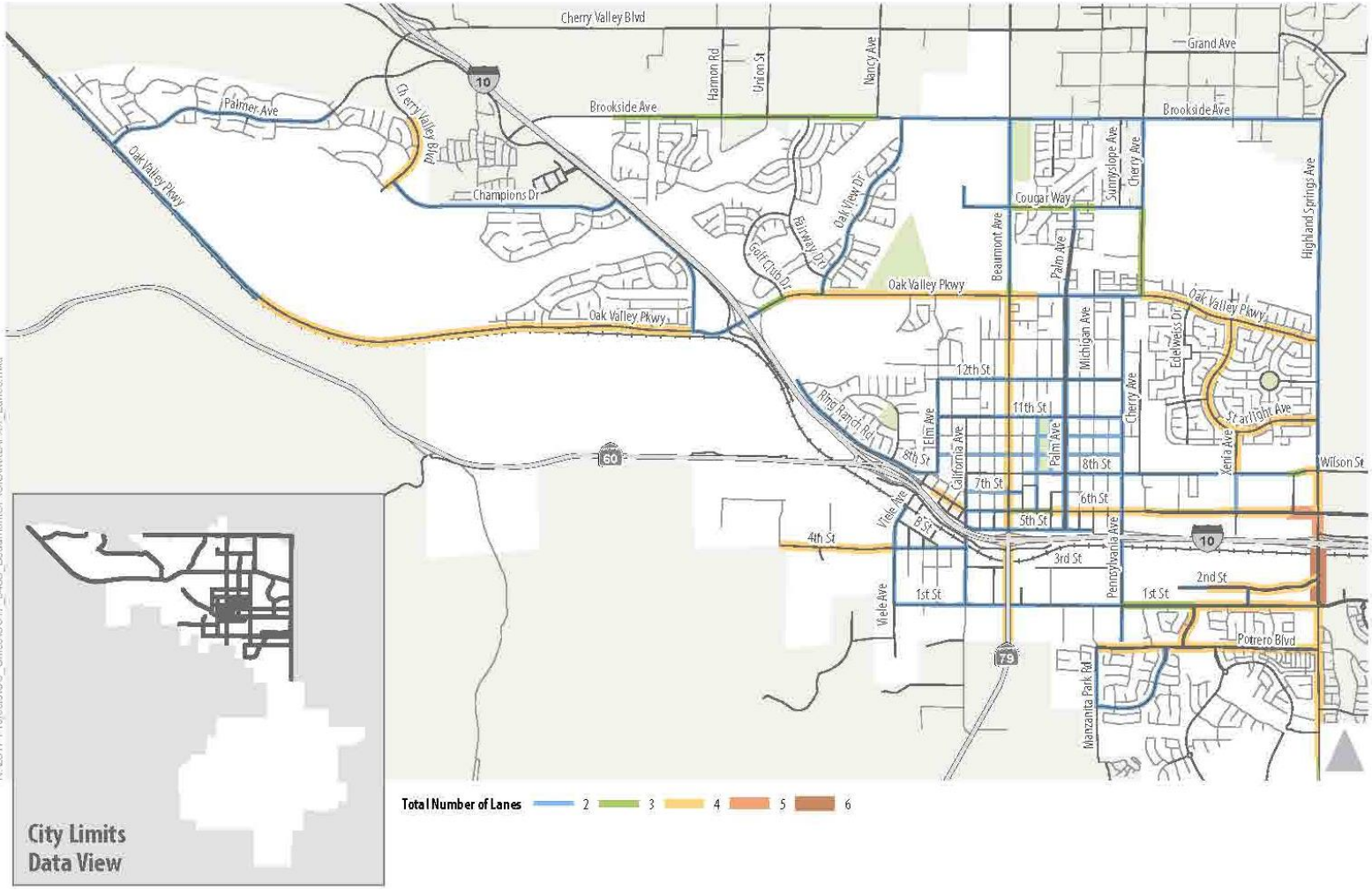


Figure 3-2

Number of Roadway Lanes

FREEWAYS AND HIGHWAYS

Freeways and highways are high-speed facilities that serve intercity or regional traffic, with access provided to grade-separated interchanges. Highways are also higher-speed, regional facilities, but access is provided at-grade in most cases. The freeways through Beaumont are Interstate 10 and State Route 60. SR 79 is a state highway entering the City.

Please note that these facilities are not included in the City's roadway classifications as they are not City facilities, but rather they are Caltrans facilities and are designed and operated to meet Caltrans standards.

- **Interstate 10 (I-10)** provides direct access into the City by way of on-off ramps located at Beaumont Avenue, Highland Spring Avenue, Oak Valley Parkway, Pennsylvania Avenue, and State Route 60. It runs east-west through Beaumont. The freeway has eight lanes with a posted speed of 70 miles per hour. Interstate 10 is the foundation of Beaumont's transportation network and serves much of the population in Riverside County as a regional connector.
- **State Route 60 (SR-60)**, also known as the Moreno Valley Freeway, provides direct access into the City by way of on-off ramps located at 6th Street. It begins west of the city, continuing towards Riverside, and terminates in Los Angeles. Within the city limits, the highway has four lanes with a posted speed of 65 miles per hour
- **State Route 79 (SR-79)** is a north-south facility beginning in Beaumont and terminating in Los Terrenitos. Within the city limits, the highway has four lanes. Beaumont Avenue, south of 5th Street, is also named SR-79. It is a state highway with a posted speed of 45 miles per hour within the city limits.

EXPRESSWAY CORRIDOR

Expressway corridors provide regional, sub regional, and intra-city travel, according to the Circulation Plan for the City of Beaumont. They usually carry the majority of traffic volumes in the roadway classification (2007 General Plan).

URBAN ARTERIAL

This roadway classification serves both regional through-traffic and inter-city traffic. They typically carry traffic onto and off-of the freeways. An Urban Arterial typically contains three travel lanes in each direction and a two-way left-turn lane with either a painted or raised median (2007 General Plan).

AUGMENTED MAJOR HIGHWAY

Augmented Major Highway serves inter-city traffic. The roadways included in this classification will typically contain three travel lanes in each direction with a painted median (2007 General Plan).

ARTERIAL HIGHWAYS

Arterial Highways serve both regional through-traffic and inter-city traffic. These roadways typically direct traffic through the City. Arterial streets provide accessibility between major activity centers and residential areas, as well as connectivity to freeways (2007 General Plan).

Major arterials typically provide four to six travel lanes. Minor arterials enhance the major arterial network and are typically two to four travel lanes. They provide service to trips of moderate lengths.

MAJOR ROADWAYS

Major roadways serve large volumes of inter-city traffic. These roadways typically direct traffic through major development nodes. They contain two travel lanes in each direction with on-street parking provided next to the curb (2007 General Plan).

SECONDARY STREETS

Secondary streets operate similarly to major roadways, except the designed capacity is less than that of a major roadway. They do not carry the volumes of through traffic typically associated with Major Arterials. The City of Beaumont General Plan separates secondary streets into three subclasses: Secondary A, Secondary B, and Secondary Frontage which have varying design requirements related to medians a. All of the Secondary Roads contain two travel lanes in each direction though only Secondary A roadways have a painted median. (2007 General Plan). The other designations direct the presence of sidewalks (one or both sides) and the presence of a parking/shoulder area.

COLLECTORS

Collector streets link residential and commercial areas to each other and to the arterial street system. Two travel lanes are typically provided on collector streets, and the maximum acceptable volumes may be based on neighborhood concerns rather than traffic capacity (2007 General Plan).

LOCAL STREETS

Local streets accommodate low volumes of local traffic and primarily provide access to individual parcels. Local streets typically have two travel lanes (one in each direction) and allow parking on both sides. (2007 General Plan). Through traffic is generally discouraged.

ROADWAY CLASSIFICATION CHANGES

- **1st Street** – 1st Street is classified as a major arterial between Michigan Avenue and Highland Springs Avenue, and as a secondary street between Michigan Avenue and Veile Avenue. It is an east-west facility with four lanes that provides access to the Walmart transit transfer station.
- **6th Street** – 6th Street is classified as a major arterial between Pennsylvania Avenue and Xenia Avenue, a secondary arterial between Beaumont Avenue and Pennsylvania Avenue, and an arterial between an east-west facility with four lanes. It provides direct access to SR-60 and I-10.
- **4th Street** – 4th Street is classified as a major arterial west of Veile Avenue. It is an east-west facility with four lanes.
- **Beaumont Avenue** – Beaumont Avenue is classified as a major arterial between Oak Valley Parkway and Cougar Way, secondary roadway between 6th Street and Oak Valley Parkway, and an expressway between Laird Road and 5th Street. It is a north-south facility with four lanes that provides access through the central region of the city.
- **Brookside Avenue** – Brookside Avenue is classified as a secondary roadway. It is an east-west facility with two lanes. It forms the southern boundary of the city limits.
- **Desert Lawn Drive** – Desert Lawn Drive is classified as a major arterial between Champions Drive and Oak Valley Parkway. It is a north-south facility with two lanes.
- **Oak Valley Parkway** – Oak Valley Parkway is classified as an urban arterial between Potrero Boulevard and Oak View Drive, a major arterial between Potrero Boulevard and Palmer Avenue, and a major arterial between Beaumont Avenue and Highland Springs Avenue. It is an east-west facility with four lanes.

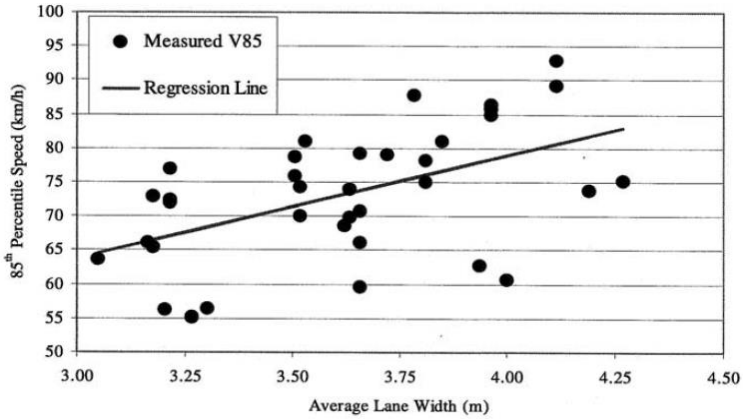
- **Palms Avenue** – Palms Avenue is classified as a collector roadway. It is a north-south facility with two lanes. Palm Avenue has a median that serves pedestrians and bicyclists.
- **Pennsylvania Avenue** – Pennsylvania Avenue is classified as a major arterial between 6th Street and 1st Street. It is a north-south facility with two lanes that provides access to the I-10.
- **Potrero Boulevard** – Potrero Boulevard is classified as a major arterial between 4th Street and Michigan Avenue, and as a secondary roadway between Michigan Avenue and Highland Springs Avenue. It is an east-west facility with two lanes.

ROADWAY SAFETY

The roadway system includes a hierarchical system of roadways, where the automobile is generally prioritized and is "pushed out" to the major arterials and delivered to the freeway system. This system results in wide roadways with high speeds. Additionally, connectivity for bicycles and pedestrians is reduced since circulation becomes circuitous and travel distances increase. However, good connectivity exists in the Downtown area, as that area has greater block density.

Research published in *Design Factors that Affect Driver Speed on Suburban Arterials* (Fitzpatrick, Key et al, June 2000) and summarized as Exhibit 3-1 show that speed increases as travel lane widths increase.

FIGURE 5.3 ROADWAY CLASSIFICATION STANDARDS



When speeds increase, safety typically decreases as crash severity goes up. Additionally, wider roads increase pedestrian exposure distances in the roadway which also affects their safety. Wider roads also increase maintenance costs for the roadways as there is simply additional pavement that needs to be maintained.

The current general plan identifies several key roadways which will largely complete connectivity for the City, including Potrero Boulevard (among others). Completing some of these roadways will further enhance connectivity within the City. Reviewing the current number of lanes and network connectivity indicates that some areas of the City, such as the downtown area, has good network block density and connectivity. However, the newer areas of the City have the more disconnected hierarchical system of roadways.

Additional constraints related to circulation in the City occur due to congestion on I-10, congestion at the freeway interchanges, and the need for grade separations with the rail alignment through the City. However, funding these improvements are challenging for local agencies as funding is always a constraint.

BICYCLE NETWORK

Bicycling is considered an environmentally friendly mode of transportation that enhances both personal and social wellbeing. In addition to transportation, this mode of travel provides many public access, health, and economic benefits. Bicycling could be recognized as an integral component of Beaumont's transportation system. Safe, convenient, attractive, and well-designed bicycle facilities are essential if this mode is to be properly accommodated and encouraged. This mode could be integrated throughout the City of Beaumont, and a network of bicycle facilities linking all areas of the Town could be accommodated. *Beaumont's Bikeway and Pedestrian Master Plan (2011, City of Beaumont Planning Department)* intends to increase the connectivity of existing infrastructure to better serve its population. Figure 5.5 shows the existing and proposed bicycle facilities based on Beaumont's Master Plan. The bicycle network in the City of Beaumont consists of dedicated bicycle paths, bicycle lanes, and bicycle routes.

As mentioned above, the City has existing bike infrastructure and is planning on expanding the current bike network to increase connectivity and encourage more use of bikes. Figure 5.6 shows the field verified existing facilities. Bicycle facilities are classified as follows:

CLASS I BIKEWAYS (BIKE PATHS)

Class I bicycle facilities are bicycle trails or paths that are off-street and separated from automobiles. They are a minimum of eight feet in width for two-way travel and include bike lane signage and designated street crossings where needed. A Class I Bike Path may parallel a roadway (within the parkway) or may be a completely separate right-of-way that meanders through a neighborhood or along a flood control channel or utility right-of-way.

FIGURE 5.4 CLASS I BIKEWAYS

CLASS I - Multi-Use Path

Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized.

MUTCD R44A (CA)

FIGURE 5.5 EXISTING AND PROPOSED BIKE & PEDESTRIAN FACILITIES

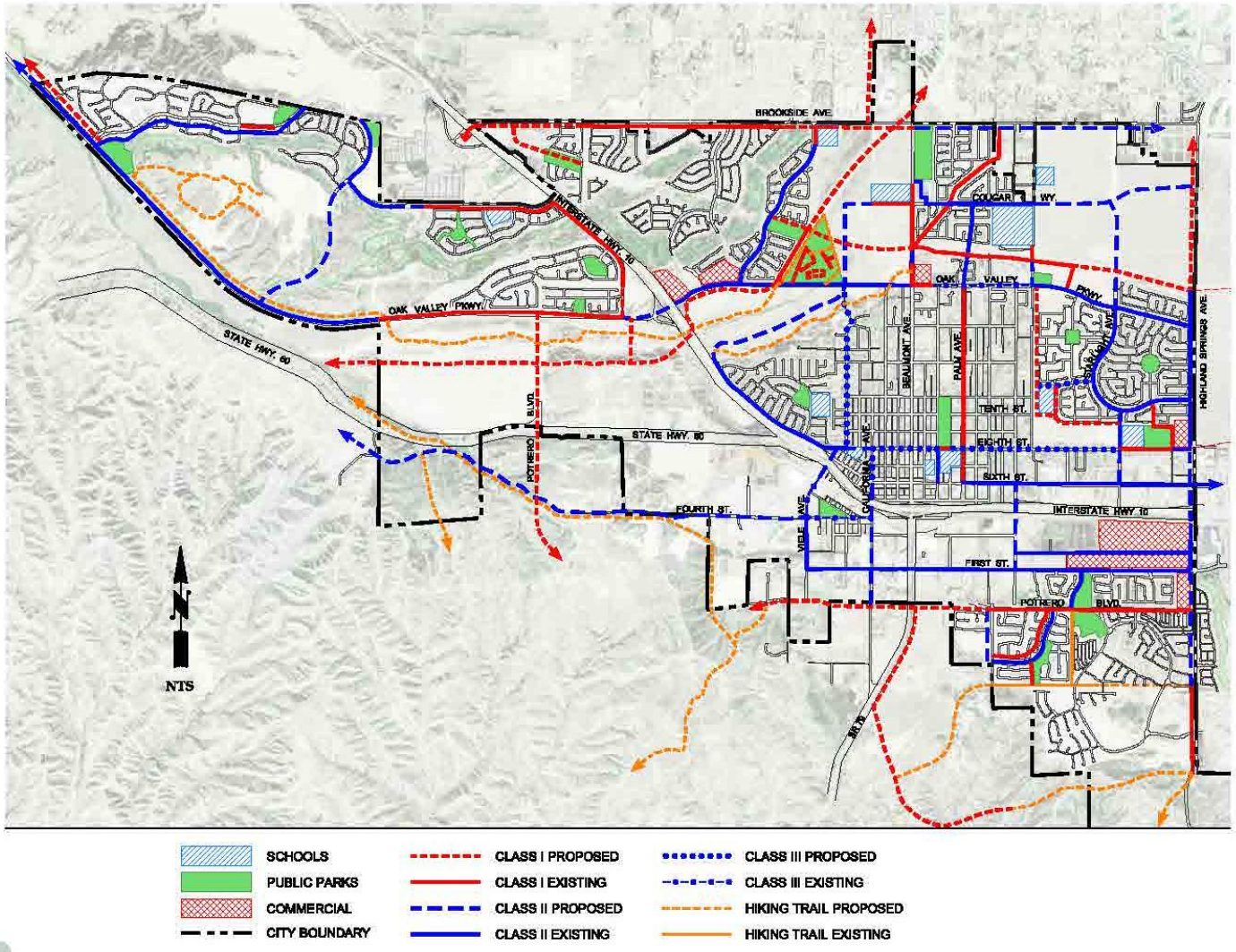


Figure 4-1

Existing & Proposed Bicycle & Pedestrian Facilities

FIGURE 5.6 EXISTING BICYCLE FACILITIES

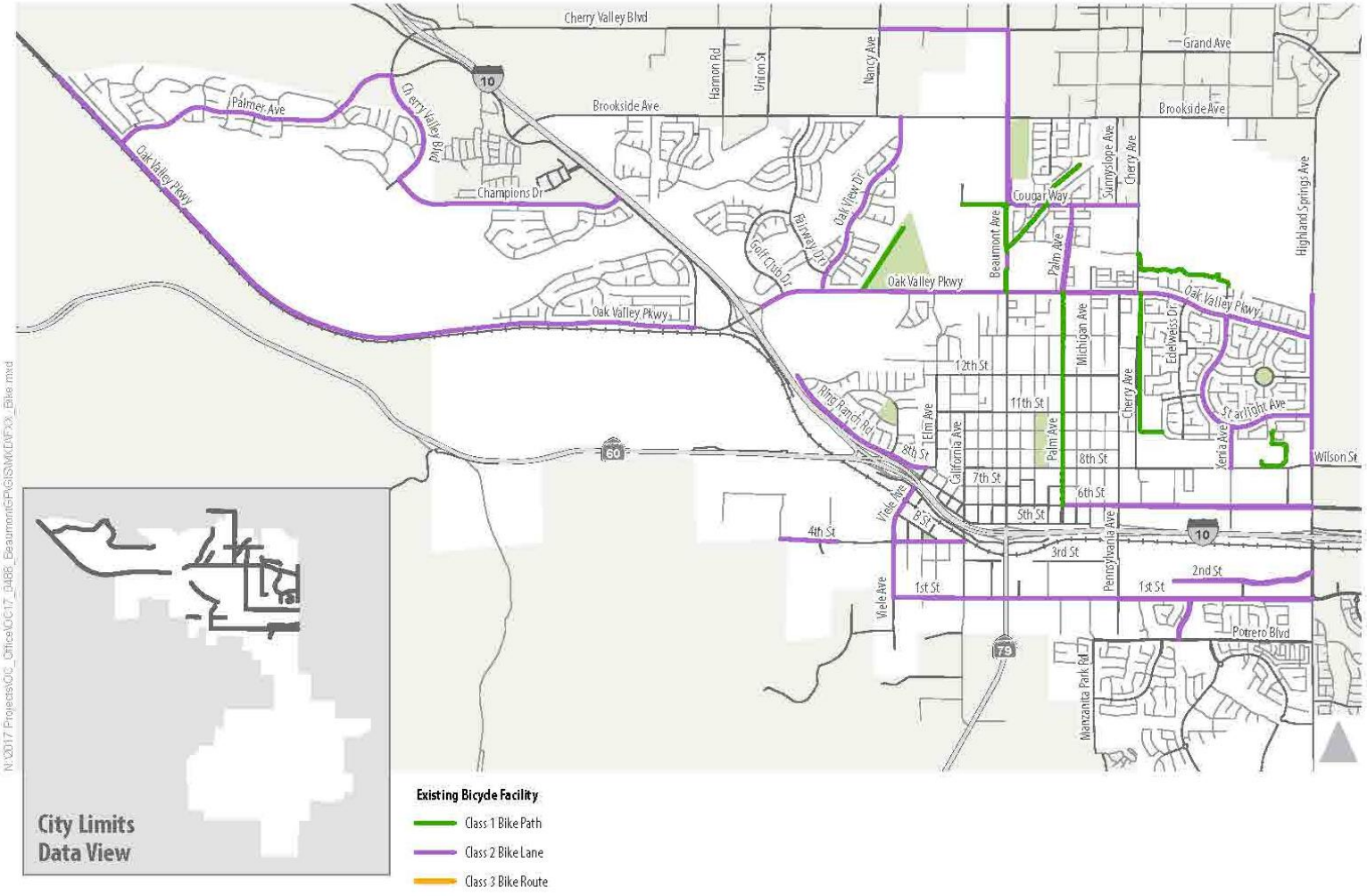


Figure 4-2

Existing Bicycle Facility

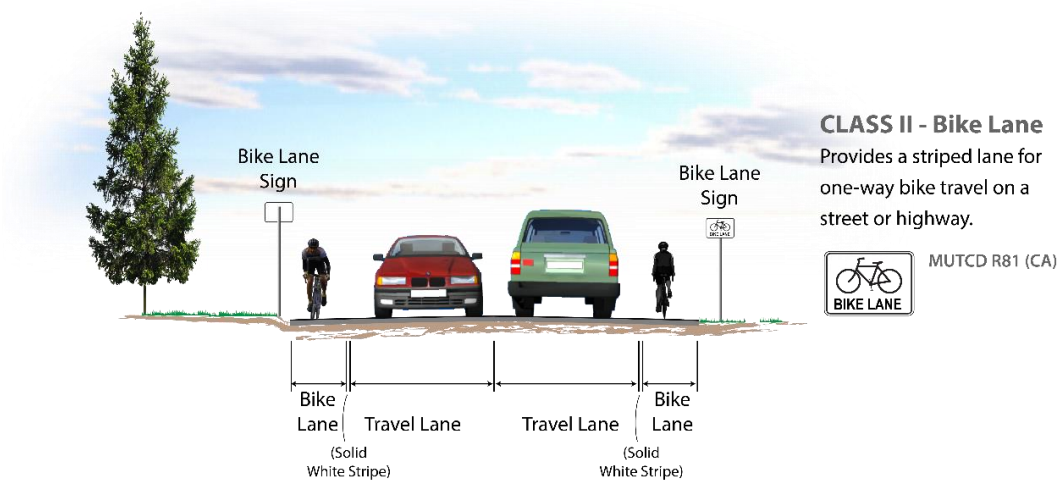
Class I Bike Paths currently exist along:

- Beaumont Avenue between Cougar Way and Oak Valley Parkway
- Palm Court between Oak Valley Parkway and 6th Street
- Northern Edison Transmission Easement between Brookside Avenue and Highland Springs Avenue
- Noble Creek between Oak Valley Parkway and Edgar Canyon
- Oak Valley Parkway between Gateway Drive and Sam Timoteo Canyon Road
- Oak Valley Parkway between I-10 NB Ramps and Highland Spring Avenue
- Oak View Drive between Brookside Avenue and Oak Valley Parkway

CLASS II BIKEWAYS (BIKE LANES)

Class II bicycle facilities are striped lanes that provide bike travel and can be either located next to a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended. However, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.

FIGURE 5.7 CLASS II BIKEWAY



Class II Bike Lanes currently exists along:

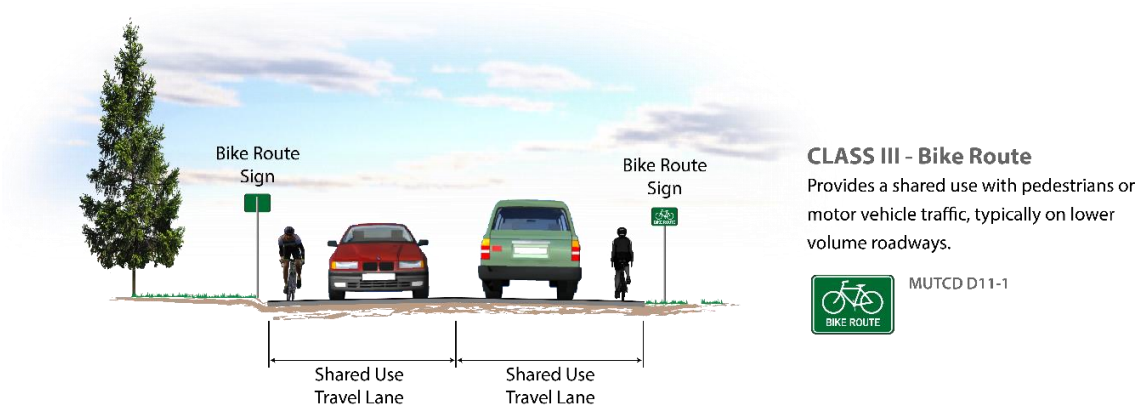
- 1st Street between Highland Springs Avenue and Veile Avenue
- 2nd Street west of Highland Springs Avenue
- 4th Street between Veile Avenue and California Avenue
- 6th Street between Palm Court and Highland Springs Avenue
- Oak Valley Parkway between Gateway Drive and Sam Timoteo Canyon Road
- Oak Valley Parkway between I-10 NB Ramps and Highland Springs Avenue
- Oak View Drive between Brookside Avenue and Oak Valley Parkway
- Palmer Avenue between Oak Valley Parkway and Cherry Valley Boulevard
- Cherry Valley Boulevard between Palmer Avenue and Champion Drive
- Cherry Valley Boulevard west of Beaumont Avenue
- Champion Drive between Cherry Valley Boulevard and Desert Lawn Drive
- Commerce Way between 2nd Street and 1st Street
- Cougar Way and Beaumont Avenue and Cherry Avenue
- Beaumont Avenue between Cougar Way and Cherry Valley Boulevard

- Highland Springs Avenue between 8th Street and 14th Street
- Palm Court between Oak Valley Parkway and Cougar Way
- Ring Ranch Road West of Veile Avenue
- Star Light Avenue between Oak Valley Parkway and Highland Springs Avenue
- Veile Avenue between Luis Estrada Road and 1st Street
- Xenia Avenue between Star Light Avenue and 8th Street

CLASS III BIKEWAYS (BIKE ROUTES)

Class III Bikeways are streets providing for shared use by motor vehicles and bicyclists. While bicyclists have no exclusive use or priority, signage – both by the side of the street and stenciled on the roadway surface – alerts motorists to bicyclists sharing the roadway space and denotes that the street is an official bike route. There are no Class III Bikeways in Beaumont.

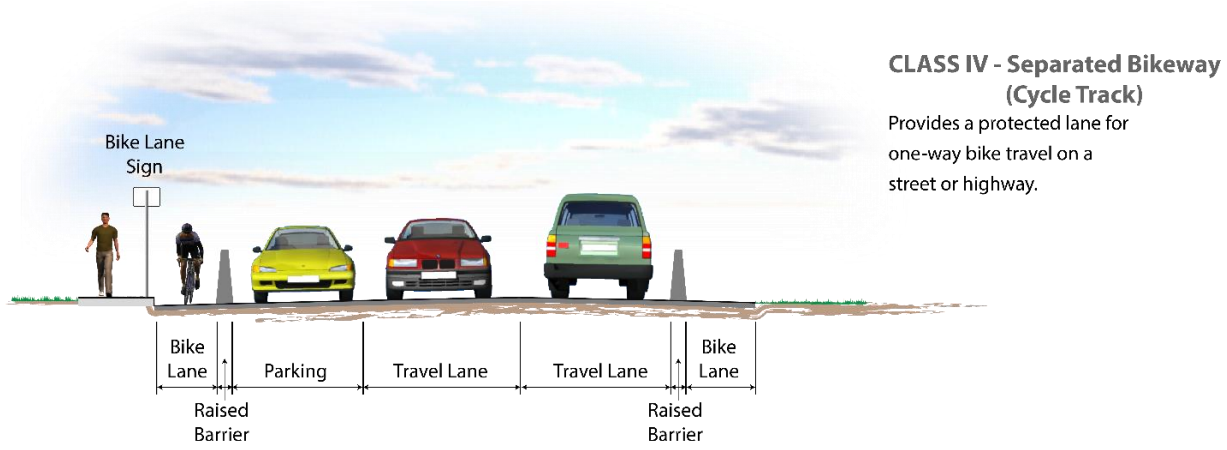
FIGURE 5.8 CLASS III BIKEWAY



CLASS IV BIKEWAYS (CYCLE TRACKS)

Class IV bicycle facilities, sometimes called cycle tracks or separated bikeways, provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and are protected from vehicular traffic via separations (e.g. grade separation, flexible posts, inflexible physical barriers, on-street parking). California Assembly Bill 1193 (AB 1193) legalized and established design standards for Class IV bikeways in 2015. There are no Class IV Bikeways in Beaumont.

FIGURE 5.9 CLASS IV BIKEWAY



BIKEWAY MASTER PLAN

Numerous bike facilities have been implemented throughout the City. However, they are generally disconnected and don't provide good cross-town connectivity to fully connect all residents to potential destinations. The Master Plan has identified a comprehensive system of bikeways, including trails along key utility corridors, that will complete the connected nature of the future bikeway system.

The Bikeway Master Plan also identifies the development of bicycle facilities along the Edison Transmission Easement corridor, which spans from Oak View Drive to Highland Springs Avenue. Another critical component identified in the Master Plan is bicycle education and safety.

Additionally, as noted above, Class IV bicycle facilities are now approved as an appropriate treatment in the State. However, this adoption came in 2015, after the City's Master Plan was completed.

PEDESTRIAN NETWORK

Walking is another environmentally friendly mode of transportation that enhances both personal and social wellbeing. In addition to transportation, this mode of travel provides many public access, health and economic benefits. Well-designed pedestrian facilities are safe, attractive, convenient, and easy to use. Incomplete sidewalk networks and poor sidewalk conditions are a major deterrent to walking.

Sidewalks are generally provided on at least one side of the street along most of the major roadways throughout the city. Figure 5.10 identifies where sidewalks are currently located based on a review of conditions as they currently exist within the City of Beaumont. Throughout the City, there are several roadways with sidewalk facilities missing on one or both sides of the roadway.

Various signalized intersections contain crosswalks allowing pedestrians the choice of where to cross, and providing good pedestrian access. The all-way and side-street stop controlled intersections within the City have a mix of crosswalks on all, some, or no approaches to the intersection.

There is also a noticeable lack of sidewalk access in the residential areas adjacent to the downtown area. Specifically, in a grid roadway network that has great connectivity, sidewalks should be provided on both sides of the roadway. As shown on Figure 5.10, the sidewalk network does not exist on all of these roadways.

FIGURE 5.10 SIDEWALK FACILITES

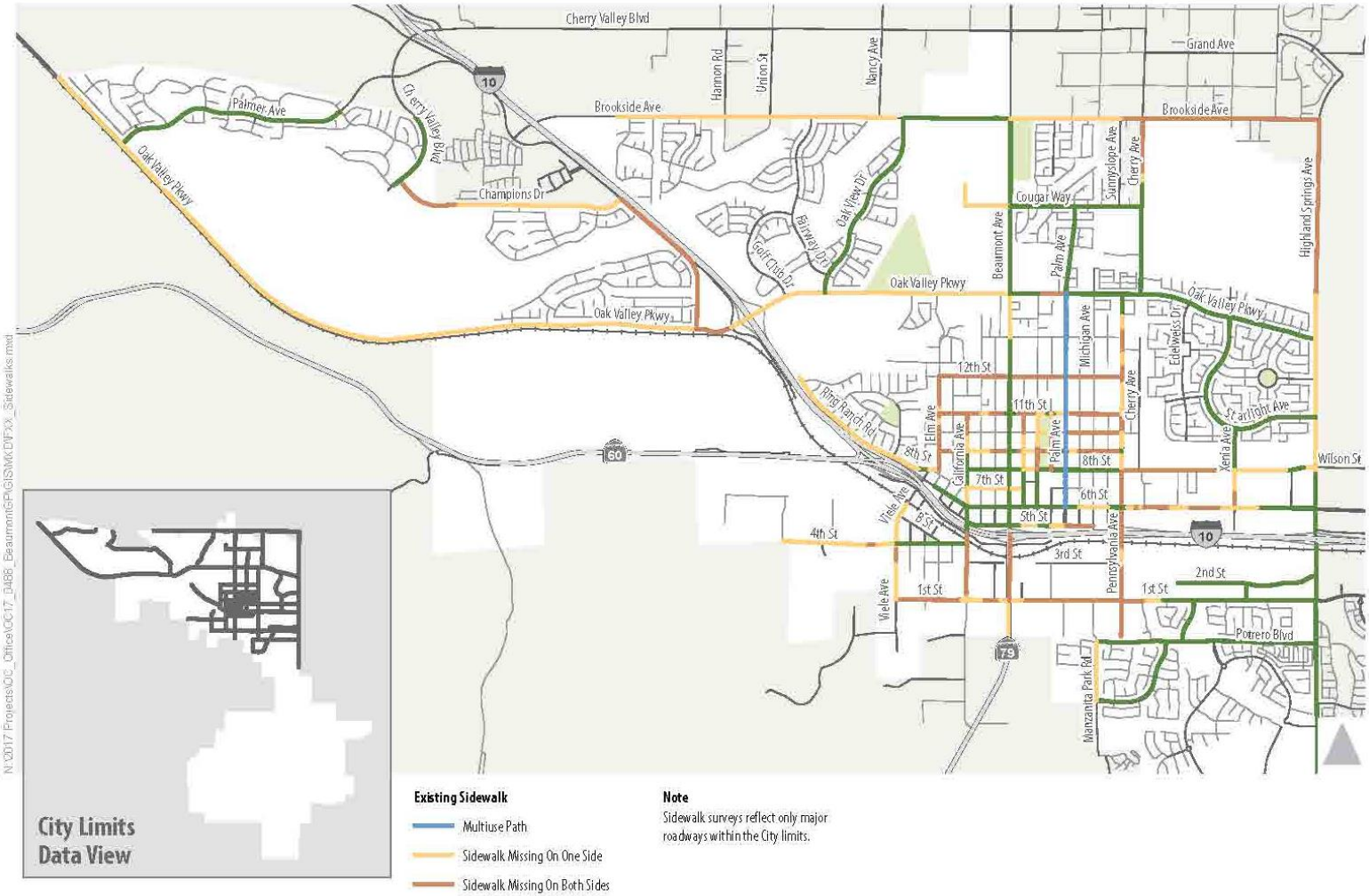


Figure 5-1

Existing Sidewalk Facility

GOLF CART NETWORK

In an effort promote the use of an alternative form of non-polluting transportation, the City of Beaumont has developed a *Golf Cart Transportation Plan (GCTP) (2010, Community & Economic Development Department)*. This plan introduces golf cart facilities, such as golf cart routes, to link neighborhoods with various attractions, such as retail, medical, and recreational facilities. Designated routes would be developed along collector streets. The GCTP defines golf cart facilities as all publicly owned facilities that provide for golf cart travel, including golf cart lanes, routes, and crossings designated by signs or permanent markings and are shared with pedestrians, bicyclist, and other motorists in the Planning Area. Golf cart facilities are separated into three categories: golf cart lanes, golf cart route area, and golf course cart crossing zones.

GOLF CART LANES

Golf cart lanes are outlined as public roadways that are designated by signs and pavement markings for golf cart travel. The plan states that theses lanes are will allow golf carts to travel adjacent to automobile traffic but within a separated striped space. Golf cart lanes are allowed to share lanes with bicyclists - 2nd street has golf cart lanes along its roadway. The proposed GCTP is shown on Figure 5.11.

GOLF CART ROUTE AREA

Golf cart route areas are travel lanes on residential streets that are shared with pedestrians, bicyclists, and other motorists.

GOLF COURSE CART CROSSING ZONES

Golf course cart crossing zones are classified as locations on public streets that allow golf carts to cross at any time, other than in darkness, on any streets, with the exception of highways.

GOLF CART USE

Currently, golf cart use is predicated on two key motivations: (1) it is an environmentally superior travel mode compared to the automobile; and (2) it is useful for residents in golf course communities who already have a golf cart. Although the second motivation will continue for those who own a golf cart in a golf course community, the first motivation will become less influential moving into the future as the vehicle fleet becomes more electrified and automobiles become as environmentally friendly as a golf cart.

FIGURE 5.11 EXISTING AND PROPOSED GOLF CART FACILITIES

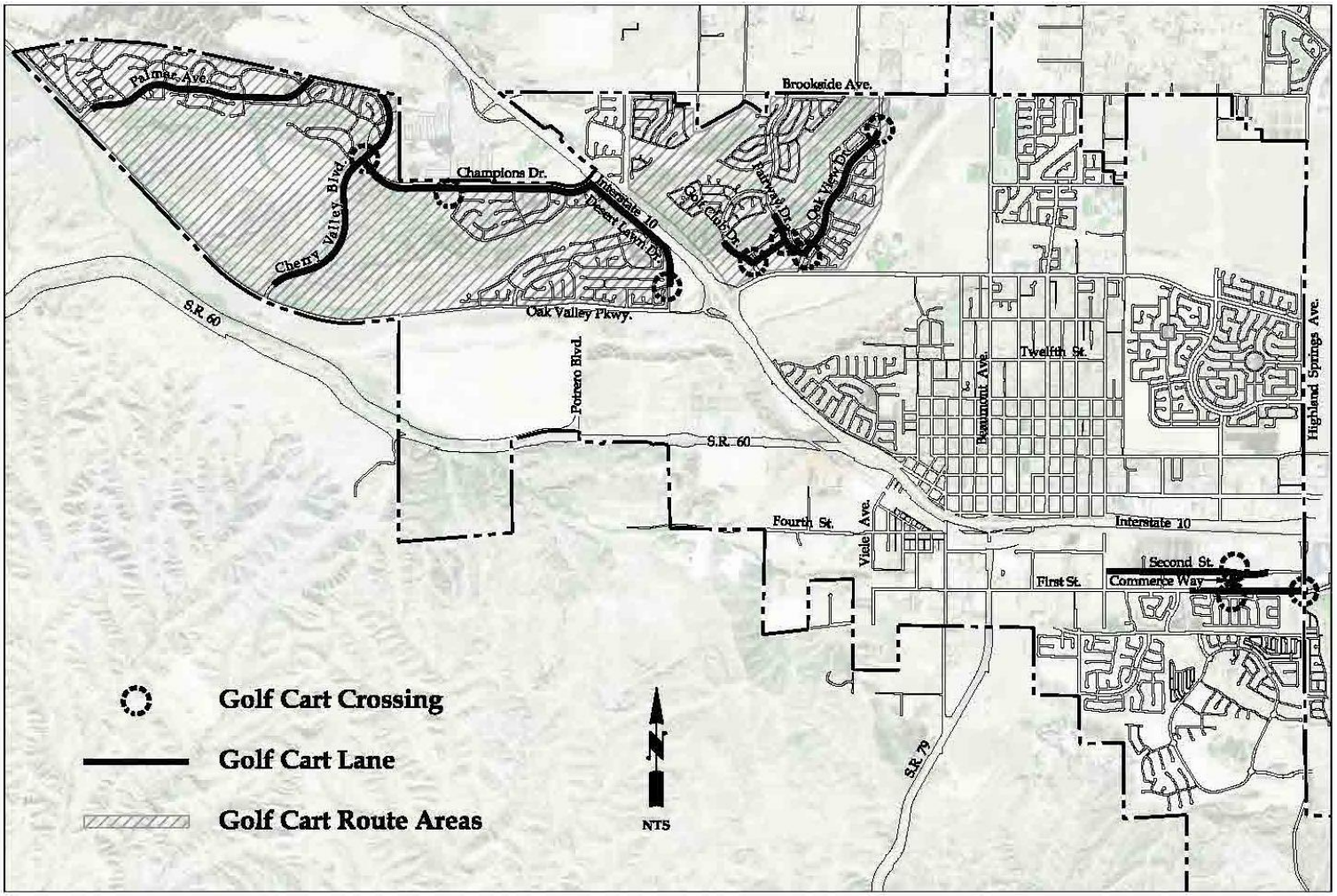


Figure 6-1

Golf Cart Transportation Plan

TRANSIT FACILITIES

Transit service in Beaumont is provided by the Beaumont Pass Transit System. It provides bus service to the City, local schools, and surrounding destinations. Many of the users of the City's system are students traveling to/from school.

BUS SERVICE

Beaumont Pass Transit System provides services to the City of Beaumont, Banning, Cherry Valley, Calimesa and Cabazon. Riverside Transit Agency and SunLine Transit Agency also provides service to the City of Beaumont. Routes that provide connectivity to the City of Beaumont include:

- **Route 2** – provides service from Beaumont to Cabazon. This route runs service to the Walmart transfer station, Banning, San Gorgonio Hospital transfer station, Casino Morongo and Outlet Malls. It operates from 6:30 AM to 7:50 PM at varying headways at least one hour apart on weekdays. It operates from 8:00 AM to 6:00 PM at approximately two-hour headways during the weekends.
- **Route 3** - provides service to the Walmart transfer station, Sundance, Beaumont High School, and Cherry Valley during the weekdays. It operates from 6:24 AM to 6:02 PM at varying headways at least one hour apart on weekdays. On Saturdays, this route operates in conjunction with Route 4.
- **Route 4** – provides service throughout midtown Beaumont to the Walmart transfer station, San Gorgonio Hospital transfer station, Orchard Park, and Chatigny Recreational Center. It operates from 7:35 AM to 7:35 PM at varying headways, at least one-hour apart on weekdays.
- **Route 7** – Route 7 provides service in conjunction with Beaumont Unified School District and operates only when school is in session. This route provides service to Fairway Canyon and Beaumont High School. Route 9 operates between the hours of 6:35 AM to 7:54 AM and 3:10 PM to 4:30 PM.
- **Route 9** – Route 9 provides service in conjunction with Beaumont Unified School District and operates only when school is in session. This route provides service to the Beaumont Walmart, Mountain View Middle School, San Gorgonio Middle School, and Beaumont High School. Route 9 operates between the hours of 6:35 AM to 7:54 AM and 3:10 PM to 4:18 PM.
- **Route 136** –Route 136 provides service in the city of Calimesa. This transit route is operated through Beaumont Pass Transit with connections to Commuter Link 120. Connection to this route provides transfer service to Yucaipa OmniTrans routes 308 and 309. Route 136 operates from 7:20 AM to 5:25 PM at varying 30-minute headways.
- **Commuter Link 120** – Commuter Link 120 is an express route that provides service from Beaumont to Calimesa, San Bernardino Metrolink Station and Loma Linda Veteran's Hospital. The San Bernardino Metrolink Stations provides transfer connections to Amtrak train services, as well as RTA, OmniTrans, Victor Valley Transit Authority, and Mountain Area Regional Transit Authority bus service. The route operates from 5:36 AM to 7:58 PM at varying headway at least two-hour headway on weekdays. It operates from 8:00 AM to 6:05 PM on Saturdays at varying two hour headways.
- **Commuter Link 220** – Commuter Link 220 is an express route that provides service between Riverside and Cabazon to Palm Desert. This service is operated by SunLine Transit Agency. Commuter Link 220 provides access to the Riverside Metrolink station as well as RTA bus routes. Beaumont Walmart serves as the bus stop for this route. Service is generally provided at three-hour headways operates from 5:15 AM to 9:49 PM.

FIGURE 5-12 TRANSIT FACILITIES

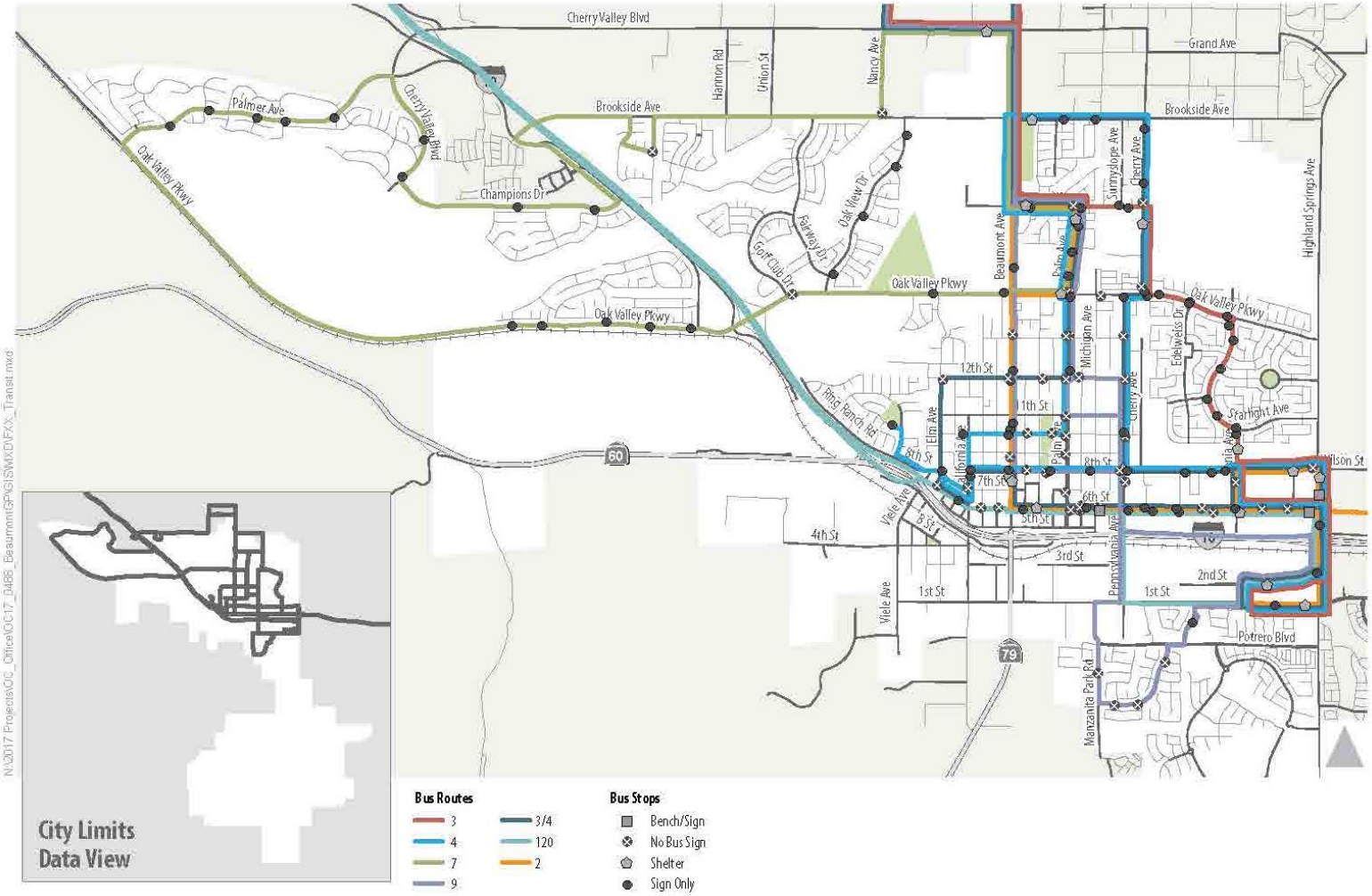


Figure 7-1

Existing Transit Facility

Most cities the size of Beaumont do not have a city-run transit system. Across the nation, bus transit systems have seen declining ridership, partially as a result of increased access to vehicles associated with TNCs. Some transit agencies, such as OCTA and transit in the City of Centennial, Colorado, are replacing low-ridership routes with subsidized TNC use. Given these factors, the general plan could provide guidance to the City related to continued monitoring of the transit system and continual evaluation to ensure that the system is operating efficiently.

The review of the transit routes indicates that they are generally connected throughout the City and do link key destinations within the City. Many stops are identified, which does reduce system performance, but many of those stops are likely related to school travel for children.

Our review of the system also indicates a wide discrepancy with bus stop treatments. Some stops are not marked, some have only a sign, and others have a bench or a shelter.

MOVEMENT OF GOODS

This chapter describes the systems that contribute to the movement of goods within and across the City of Beaumont.

RAILROAD NETWORKS

There is no direct access to passenger rail networks within the City of Beaumont. The nearest passenger rail lines are located at the San Bernardino Transit Station where Metrolink and Amtrak provide services. Union Pacific operates the mainline railroad network in the city. RCTC is also completing a study evaluating the potential expansion of passenger rail service to the Coachella Valley and San Gorgonio Pass to improve regional mobility.

FREIGHT SYSTEM

The goods or freight movement system in Beaumont is crucial to the well-being of the residents of the City. Identifying and prioritizing facilities for goods movement is vital to effective planning. Industrial and commercial facilities are located along 4th Street, south of Veile Road, and 6th Street, between Pennsylvania and Xenia Avenue. Both the I-10 and SR-60 operate as major roadway networks providing access to trucks. Since the City of Beaumont does not have a network of designated truck routes, trucks are allowed to utilize locate roadways to reach destinations in the City.

LOGISTICS LAND USE

Although land use will be covered in the land use element, the Inland Empire generally has a high level of pressure to provide increased logistics space. The development of most logistics-based land use will increase the presence of heavy vehicles.

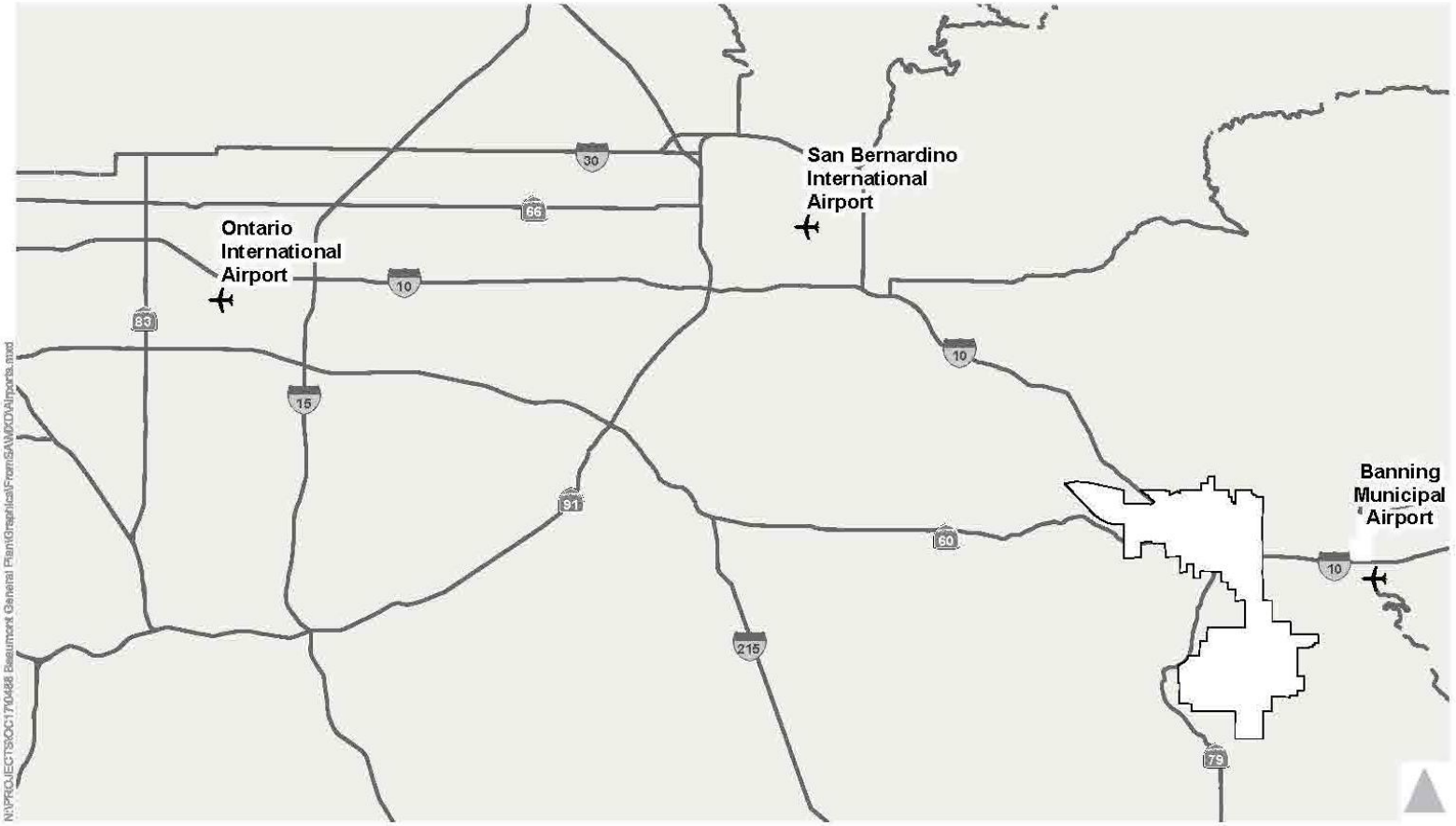
MAINTENANCE

Heavy vehicles also increase the wear and tear on the transportation system. Specifically, the weight of the vehicle will require increased roadway structural section and will increase the frequency of maintenance of the facility.

AIRPORT FACILITIES

Thera are no airport facilities in the City of Beaumont. The closest municipal airport is in Banning. Primary regional service is provided by San Bernardino International Airport, located approximately 25 miles west of Beaumont, and Ontario Airport, located approximately 40 miles west of Beaumont. Figure 5.13 shows the City's location relative to these key airports. Banning Airport is also under consideration for closure and re-use as a logistics center or e-commerce hub.

FIGURE 5.13 AIRPORT FACILITIES



City of Beaumont

Airports

Figure 9-1

Airport Facilities

AUTONOMOUS VEHICLES

There are several levels of vehicle autonomy. They range from cruise control (low level of autonomy) to fully autonomous vehicles (AVs) that require no interaction with the driver. Manufacturers are developing this technology, and the Federal and State governments will likely determine regulations for a fully autonomous fleet.

It is unknown how long the vehicle fleet will take to turn over to a fully autonomous fleet. However, it is coming and is something that the City should recognize in the General Plan from a policy perspective.

This expansion will likely change future travel behaviors in the city. AVs are expected to make car travel less stressful, increase travel safety, and reduce operational inefficiencies on freeways. The transition period, when streets carry large numbers of both conventional and autonomous vehicles, will involve complex interactions and require new informed analysis methods and professional judgment to address conflicts and benefits. AV interactions with pedestrians and cyclists will also require careful planning and design. The City's General Plan should guide the City through policy directives to embrace a future AV fleet and provide infrastructure to support this fleet.

One infrastructure component that will be affected by an AV fleet is parking and parking utilization. Currently, in the United States, approximately five parking spaces are provided per vehicle on the network. In a shared AV fleet, the need for that many parking spaces will not be required and the General Plan should direct the City to adjust parking requirements accordingly.

Other factors that should be considered as part of a fully AV fleet are noted below:

- Increased VMT
- Increased safety
- Decreased need for parking
- Improved freight and logistics handling and deliveries

TRANSPORTATION NETWORK COMPANIES

Transportation network companies (TNCs), such as Uber and Lyft, are increasing in popularity and usage. TNCs combine web based applications, such as mobile applications, and ridesharing vehicles. While TNCs could reduce the number of vehicles on the roadway network, it is also likely to increase vehicle miles traveled. Studies suggest that the limited amount of space dedicated to transportation networks requires public agencies to make clear choices and tradeoffs about the priority of lanes and curb space if they desire efficient operations.

There is a growing trend linking TNCs and transit. TNCs often provide transportation to and from key destinations, such as transit stations. The growth in use of TNCs will be dependent on the ability to expand coverage, reach new passengers while retaining existing passengers, attract drivers, work with cities and regulators, show that TNCs can have a profitable business model, and to develop autonomous technology that will fold into a shared AV fleet network. The City's general plan should guide the City through policy directives to embrace TNCs and provide infrastructure to support their increase in usage. Policies should also be identified in the general plan that would address curbside management, such as areas that either prioritize or restrict passenger loading and unloading.

STATE REGULATIONS

The regulatory framework is used to inform decision makers about the regulatory agencies and policies that affect transportation in the City. This enables them to make informed decision about planning improvements to transportation systems in the City.

CALIFORNIA COMPLETE STREETS ACT

The California Complete Streets Act (Assembly Bill [AB] 1358) was signed into law on September 30, 2008. Beginning January 1, 2011, AB 1358 requires circulation element updates to address the transportation system from a multi-modal perspective. The act states that streets, roads, and highways must "meet the needs of all users in a manner suitable to the rural, suburban, or urban context of the general plan." The act requires a circulation element to plan for all modes of transportation where appropriate, including walking, biking, car travel, and transit.

The Complete Streets Act also requires circulation elements to consider the multiple users of the transportation system, including children, adults, seniors, and the disabled. AB 1358 tasks the Governor's Office of Planning and Research to release guidelines for compliance which are so far undeveloped.

The City of Beaumont should strive to comply with AB 1358 by addressing the transportation system from a multi-modal and multiple user perspective in the General Plan. Beaumont should plan for alternative travel modes to the automobiles such as walking, bicycling, and transit, and provide better service to users of these prioritized modes. The General Plan should adopt a Complete Streets approach, providing accessibility for all users of all ages and abilities.

GLOBAL WARMING SOLUTIONS ACT

The Global Warming Solutions Act (AB 32) was signed into law on September 27, 2006. AB 32 established a comprehensive program to reduce greenhouse gas emissions to combat climate change. This bill requires the California Air Resources Board (CARB) to develop regulations to reduce greenhouse gas emissions to 1990 levels by 2020. On January 1, 2012, the greenhouse gas rules and market mechanisms, adopted by CARB, took effect and became legally enforceable.

The reduction goal for 2020 is to reduce greenhouse gas emissions by 25% of the current rate in order to meet 1990's level, and a reduction of 80% of current rates by 2050. The AB 32 Scoping Plan contains the main strategies California will use to reduce the greenhouse gases. The scoping plan has a range of greenhouse gas reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation regulation to fund the program.

CARB recognizes cities as "essential partners" in reducing greenhouse gas emissions. The Air Resources Board has developed a Local Government Toolkit with guidance for GHG reduction strategies such as improving transit, developing bicycle/pedestrian infrastructure, increasing city fleet vehicle efficiency, and other strategies.

The City of Beaumont should follow the example of other cities that voluntarily strive to comply with AB 32 and implement greenhouse gas reduction strategies into the city's General Plan.

SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT

The Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, provides incentives for cities and developers to bring housing and jobs closer together and to improve public transit. The goal is to reduce the number and length of automobile commuting trips, helping to meet the statewide targets for reducing greenhouse gas emissions set by AB 32.

SB 375 requires each Metropolitan Planning Organization to add a broader vision for growth, called a Sustainable Communities Strategy (SCS), to its transportation plan. The SCS must lay out a plan to meet the region's transportation, housing, economic, and environmental needs in a way that enables the area to lower greenhouse gas emissions. The SCS should integrate transportation, land-use, and housing policies to plan for achievement of the emissions target for their region. The Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) and SCS were adopted in 2012.

The City of Beaumont should strive to comply with SB375 by incorporating components into the General Plan. Applicable components of the SCS include:

- Support transit-oriented development
- Support infill housing development and redevelopment
- Support mixed-use development that improves community walkability
- Improve jobs-to-housing ratio
- Promote land use patterns that encourage the use of alternatives to single-occupant automobile use
- Apply Transportation System Management (TSM) and Complete Streets practices to arterials to maximize efficiency
- Improve modes through enhanced service, frequency, convenience, and choices
- Expand and enhance Transportation Demand Management (TDM) practices to reduce barriers to alternative travel modes and attract commuters away from single occupant vehicle travel

CALIFORNIA SENATE BILL 743

SB743 was signed into law on September 27, 2013, and has the potential to fundamentally change the traditional transportation impacts analyses conducted as part of the CEQA process. According to this bill, parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area will not be considered significant impacts. Also, residential, mixed-use, and employment center projects meeting specific criteria would be exempt from CEQA.

Furthermore, this bill eliminates measures such as auto delay, level of service (LOS) and other vehicle-based measures of capacity in many parts of California. Instead, other measurements such as vehicle miles traveled (VMT) are to be utilized to measure impacts.

The purpose of SB 743 is to balance the needs of congestion management, infill development, public health, greenhouse gas reductions, and other goals. The Office of Planning and Research is currently in the process of releasing guidelines for determining which impacts and projects are exempt from CEQA consideration.

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6. OUR COMMUNITY SERVICES

OVERVIEW

This chapter of the Existing Conditions Report addresses topics related to community services. This includes an overview of parks and recreational facilities, library, education, utilities, and infrastructure.

KEY FINDINGS

The following key findings summarize important takeaways for this chapter:

- **Sports Facilities:** There is a demand for multi-use recreational fields to accommodate the soccer, football, and baseball leagues throughout the City. These are managed by Beaumont Cherry Valley Recreation and Park District.
- **Library Services:** There is only one library to serve the community. There may be a need to expand upon the quality and quantity of public library services. These are managed by the Beaumont Library District.
- **School Facilities:** Additional schools may be needed at all levels to accommodate future development. These are managed by the Beaumont Unified School District.
- **Water Supply**: Current storage supplies may be exhausted in less than a decade. Opportunities for groundwater recharge will be an important consideration during development of the General Plan Update. These are managed by the Beaumont-Cherry Valley Water District.
- **Sewage Treatment:** Upgrades to the Wastewater Treatment Plant are imperative to the buildout of the General Plan.
- **Recycled Water**: Use of recycled water for potable uses will be on the horizon as water shortages increase from drought and population demands.

ANALYSIS

PARKS AND RECREATION

Park and recreation services for the City of Beaumont are provided by the City of Beaumont and the Beaumont-Cherry Valley Recreation and Park District (BCVRPD). Thirteen parks are provided for and maintained by Home Owners Association (HOA) as reflected in Table 6.1, Park and Recreational Facility Inventory and Table 6.1 below. HOA parks may be dedicated to the City or maintained by the HOA.

The BCVRPD is a Special District within the City of Beaumont. BCVRPD operates facilities estimated at 60.5 acres within City boundaries. Noble Creek Park, a 20-acre sports park maintained by BCVRPD, is highly utilized by all sports leagues within the City and includes a dog park and a one mile walking trail. BCVRPD also operates the Beaumont Women's Club facility which is used to support community activities.

All park and recreation facilities within the Planning Area are provided in Table 6.1 below. The distribution of parks throughout the Planning Area is shown in Figure 6.1.

TABLE 6.1 PARK AND RECREATIONAL FACILITY INVENTORY

No.	FACILITY	LOCATION	Acres	Ownership
1	Three Rings Ranch Park*	Claiborne Avenue & Brookside	7	City
2	Albert A Chatigny Sr. Community Recreation Center (CRC)	1310 Oak Valley Parkway	2.6	City
3	Beaumont Civic Center	550 E 6th Street	5.78	City
4	De Forge Park*	Seneca Springs Parkway	12	City
5	Fallen Heroes Park	Oak View Drive & Iris Street	15	City
6	Mountain View Park	Sundance Circle	5	City
7	Nicklaus Park	11270 Palmer Avenue	22	City
8	Palmer Park*	Palmer Avenue & Trevino Trail	5	City
9	Rangal Park*	4th & B Street	5	City
10	Seneca Springs Park	Malaga Avenue	5	City
11	Shadow Hills Park	Park Way Drive	3.9	City
12	Beaumont Sports Park**	39200 Brookside Avenue	20	City
13	Stetson Park	Monte Verde Drive	7	City
14	Stewart Park*	985 Maple Avenue	15	City
15	Sunny Hills Park	Cougar Way	0.32	City
16	Trevino Park*	Cherry Valley Blvd &Trevino Trail	7	City
17	Veteran's Park	California & 7th Street	0.09	City
18	Wild Flower Park*	Tulip Circle	3	City
City Subtotal			**140.69**	
19	Noble Creek Community Park***	390 Oak Valley Parkway	60	BCVRPD
20	Beaumont Women's Club	306 E 6th Street	0.5	BCVRPD
BCVRPD Subtotal			**60.5**	
21	The Canyon Club (Fairway Canyon)	36189 Champions Drive	3.92	HOA
22	Tournament Hills 1 Park 1	Champions Drive	7.16	HOA
23	Tournament Hills 1 Park 2	Amateur Way	7.35	HOA
24	Tournament Hills 2 Park	Links man Dr.	3.12	HOA
25	The Lodge	1518 Four Seasons Circle	10.4	HOA
26	The Summit (Four Seasons Rec Center 2)	370 Four Seasons Circle	2.4	HOA
27	Four Seasons Trails/ Open Space Corridors	Four Seasons Community	81.1	HOA
28	Solera Club House	1615 Fairway Drive	4.32	HOA
29	Solera Park and Trails	1615 Fairway Drive	16.68	HOA
30	Sundance PA 45	1380 Mary Lane	3.72	HOA
31	Sundance PA 51	1650 Croton Street	1.4	HOA
32	Sundance PA 25	Sunset Place	0.557	HOA
33	Sunshine Park	Starlight and Sunburst	0.085	HOA
HOA Subtotal			**142.2**	
	TOTAL PARK ACREAGE		**343.4**	

* Contains baseball/softball field

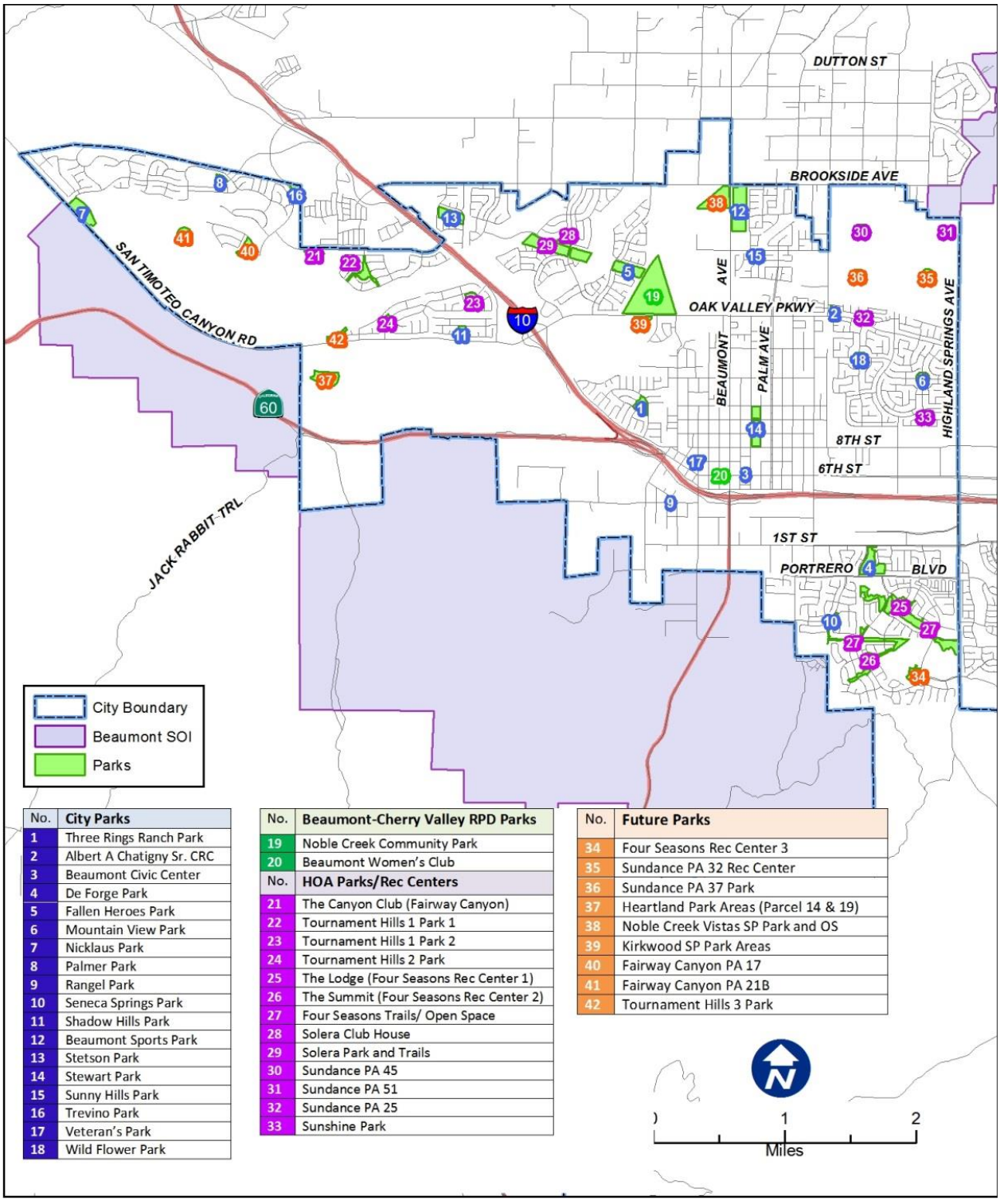
** Contains three baseball/softball field and five soccer fields

*** Contains seven baseball/softball fields and one soccer field

The City's current park ratio requirement is 5 acres of parkland (and full improvements) per 1,000 residents. Based on the City's current estimated population of 45,188 residents, the City requires 225.59 acres of parkland to meet park ratio requirements. Based on the total acres of all parks and facilities maintained by the City, HOA, and BCVRPD within the City limits, a total of 343.4 acres of parkland is being provided for a current park ratio of 7.61 acres of parkland per 1,000 residents. Therefore, the City is currently exceeding required park ratios.

According to City staff, the community takes great interest in community sports. Nine parks include baseball/softball fields and two parks include soccer fields. With a growing population, there may be desire to seek out opportunities for multi-use recreational fields to accommodate the soccer, football, and baseball leagues within the community.

FIGURE 6.1 PARK AND RECREATIONAL FACILITY MAP



No.	City Parks
1	Three Rings Ranch Park
2	Albert A Chatigny Sr. CRC
3	Beaumont Civic Center
4	De Forge Park
5	Fallen Heroes Park
6	Mountain View Park
7	Nicklaus Park
8	Palmer Park
9	Rangel Park
10	Seneca Springs Park
11	Shadow Hills Park
12	Beaumont Sports Park
13	Stetson Park
14	Stewart Park
15	Sunny Hills Park
16	Trevino Park
17	Veteran's Park
18	Wild Flower Park

No.	Beaumont-Cherry Valley RPD Parks
19	Noble Creek Community Park
20	Beaumont Women's Club
No.	**HOA Parks/Rec Centers**
21	The Canyon Club (Fairway Canyon)
22	Tournament Hills 1 Park 1
23	Tournament Hills 1 Park 2
24	Tournament Hills 2 Park
25	The Lodge (Four Seasons Rec Center 1)
26	The Summit (Four Seasons Rec Center 2)
27	Four Seasons Trails/ Open Space
28	Solera Club House
29	Solera Park and Trails
30	Sundance PA 45
31	Sundance PA 51
32	Sundance PA 25
33	Sunshine Park

No.	Future Parks
34	Four Seasons Rec Center 3
35	Sundance PA 32 Rec Center
36	Sundance PA 37 Park
37	Heartland Park Areas (Parcel 14 & 19)
38	Noble Creek Vistas SP Park and OS
39	Kirkwood SP Park Areas
40	Fairway Canyon PA 17
41	Fairway Canyon PA 21B
42	Tournament Hills 3 Park

EDUCATION

The residents within the Planning Area are served by Beaumont Unified School District (BUSD) educational facilities and services. BUSD also serves residents of Cherry Valley and portions of Banning. Currently, BUSD operates five elementary schools, two middle schools, one high school, two alternative high schools and an extensive preschool and adult education program. BUSD's existing school facilities are listed in Table 6.2, BUSD Existing Schools.

TABLE 6.2 BUSD EXISTING SCHOOLS

School	Grades	Location
Anna M. Hause	Transition K-5	1015 Carnation Lane
Brookside Elementary	K-5	38755 Brookside Avenue
Chavez Elementary	K-5	1730 Cherry Avenue
Palm Elementary	K-5	751 Palm Avenue
Sundance Elementary	K-5	1520 East 8th Street
Three Rings Ranch Elementary	K-5	1040 Claiborne
Tournament Hills Elementary	K-5	36611 Champions Drive
Mountain View Middle School	6-8	200 Cougar Way
San Gorgonio Middle School	6-8	650 Magnolia Avenue
Beaumont High School	9-12	39139 Cherry Valley Blvd

Source: Beaumont Unified School District. Available at http://www.beaumont-ca.schoolloop.com/schools, accessed February 22, 2017.

In addition to traditional educational facilities, BUSD provides continuing education facilities for Grades 9 through 12 at Glenview Continuation High School located at 939 East 10th Street. For the 2015/2016 school year, there was adequate capacity at the elementary and high school levels, as shown in Table 6.3, Existing School Capacity and Enrollment. However, the middle schools currently show a shortage in capacity.

TABLE 6.3 EXISTING SCHOOL CAPACITY AND ENROLLMENT

School Level	2015/2016 Facility Capacity	2015/2016 Student Enrollment	Capacity Excess Or (Shortage)
Elementary (Grades K-6)	5,657	5,272	385
Middle School (Grades 7-8)	1,190	1,329	(139)
High School (Grades 9-12)	4,108	2,767	1,341
Total	**10,955**	**9,368**	**1,587**

Source: Beaumont Unified School District. School Facility Needs Analysis, March 11, 2016, Table 6.

BUSD will experience growth that will continue to press school capacities. The BUSD's 2016 School Facility Needs Analysis[1] identifies that BUSD can expect an additional 25,728 residential units through build-out (i.e. when all possible development that can occur within the service boundary of BUSD has occurred). Future projections indicate there will be a shortage in future school capacity and the BUSD will need to construct at least two elementary schools, one middle school and one high school to accommodate anticipated development over the next 20 years.[11]

[11] Beaumont Unified School District. *School Facility Needs Analysis*, March 11, 2016, pp. 11, 17-18

LIBRARY

Beaumont Library

The Beaumont Library District (BLD) was established in August 1911, founded a year earlier than the City, and is one of only a dozen special district libraries in the State of California. Special District Public Libraries are governed by a Board of Trustees. The BLD is independent of both City and County governments and receives support from the Laura May Stewart Foundation and the Friends of the Library non-profit organizations. Beaumont's "Carnegie Library" was funded by Andrew Carnegie and opened in 1914. An addition was built onto the 1914 building in 1966 and a community room was built in 1981. The Beaumont Library, located at 125 E. Eight Street, currently serves over 80,000 residents of the City of Beaumont, unincorporated Cherry Valley, part of the City of Banning, and unincorporated areas of Riverside County, all of which lie within the District boundaries. The Library serves to provide services for adults as well as children and teens, with a total of 56,745 volumes, and 14,490 registered borrowers utilizing the collections.

The general rule of thumb for public libraries is to provide 0.5 to 1.0 square feet of space per capita, although better libraries across the country tend to have even more space. There are various other ratios, such as volumes per capita, seating per capita, etc., and the ratios vary depending upon the size of the service population.[12] Currently, the Library building is about 12,000 square feet or 0.17 square feet per capita. Over the last several years, architectural plans and drawings for a building of slightly more than 40,000 square feet have been developed that would place the Library within the suggested range.[13]

Beaumont Library Today

The current collection is about 75,000 items. The proposed facility would easily hold 150,000. Despite changing trends, books are not going away. The latest Gallup poll shows that nearly 75% polled prefer printed books, about 19% utilize e-books regularly, with the remaining, listening to audiobooks.[3]

During the past 15 years, rapid housing growth has added to property tax revenues, but the lack of impact fees has meant that the BLD has had to increase the scope of its service from a facility that is now much too small. To meet the demand, advanced technologies were implemented in 2010 before many larger libraries. The library added a radio frequency identification (RFID) self-checkout and self-return system that included mechanized sorting equipment and new personalized "out-from-behind-the-desk" and "Information Concierge" services using wireless radios and headsets. The library's new one gigabyte connection

[12] American Planning Association, *Planning the Public Library*. (Available at https://www.planning.org/pas/reports/report241.htm (Accessed April 6, 2017)

[13] Beaumont Library District Principal Librarian, Luren E. Dickinson, April 6, 2017. (email communication).

provides high speed Internet access to those using library computers or their own devices. The library Web site allows for remote access to e-books, e-audio, digital magazines, and more 24 hours a day, 7 days a week.

The BLD has recognized the need for building expansion but issuance of a bond will be necessary. A library foundation is being formed for this purpose. As the population of the City of Beaumont continues to grow, the BLD services will continue to be impacted until adequate facilities are provided.

According to the Public Library Association, new technology will likely affect how and what services libraries offer, including each library's ability to adapt and implement new technologies, such as tablet loaner programs, virtual reality spaces, 3-D printing stations, robotics, and drones utilized for book drop-offs and pickups.[14] Additional trends include utilizing libraries as community builders to help revitalize neighborhoods and downtown areas.[15] Libraries may also serve as community centers for diverse populations, such as non-English speakers, immigrants, lesbian-gay-bisexual-transgender-intersex-and questioning (LGBTIQ) patrons, and disabled patrons seeking information, resources, and support. While technological advancement often implies brick and mortar places and real books will become obsolete, libraries will likely continue to server very important functions for our communities into the future.

PUBLIC UTILITIES AND INFRASTRUCTURE

WATER

The Beaumont-Cherry Valley Water District (BCVWD) provides potable water service to the City of Beaumont and currently serves over 50,000 residents, providing approximately 16,577 service connections, with estimated water demand of 11,000 acre-feet per year (AFY). At present, water supplies available to support development within the City consist primarily of groundwater extracted from the Beaumont Basin (also referred to as the Beaumont Storage Unit (BSU) or Beaumont Management Zone (BMZ)) and Edgar Canyon (aka, Little San Gorgonio Creek). BCVWD also has a non-potable water system designed to convey a blend of non-potable groundwater, recycled water, untreated imported water and potable water, to compensate for water losses. In addition, BCVWD currently owns and operates a groundwater recharge facility and imported water pipeline within the City limits. Additional sources of potable water through imported water are also available to the City through the San Gorgonio Pass Water Agency (SGPWA or "Pass Agency"), which is a State Water Contractor to import water from Northern California through the State Water Project (SWP).

Based on the 2015 BCVWD UWMP, the City has approximately 8,011 AFY of water for use.[16] However, non-potable water supplies are unavailable to the District to date, decreasing its water supply to an estimated 6,600 acre-feet

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[14] Public Library Association, A Publication of the Public Library Association – Public Libraries Online, *Emerging Tech Trends Require Change Management*, July 1, 2016. Available at http://publiclibrariesonline.org/2016/07/emerging-tech-trends-require-change-management/ accessed March 28, 2017

[15] Public Library Association, A Publication of the Public Library Association – Public Libraries Online, *Community Centered: 23 Reasons Why Your Library is the Most Important Place in Town,* September/October 2011. (Available at http://publiclibrariesonline.org/2013/04/community-centered-23-reasons-why-your-library-is-the-most-important-place-in-town/, accessed April 25, 2017.)

[16] Total of 8,011 AFY includes: 1,500 AFY of groundwater from the Beaumont Basin Adjudication; approximately 451 AFY from unused allocated overlying water rights; approximately 2,260 AFY from the Edgar Canyon Basin; approximately 2,300 AFY of imported water purchased from San Gorgonio Water Agency (SGPWA); and 1,500 AFY of non-potable water supply.

in 2015. The total water demand for 2015 was estimated at 12,453 acre-feet, creating a water deficit of approximately 5,900 acre-feet. Since the UWMP includes a non-potable water supply of 1,500 AFY, the deficiency in water supply is estimated at 4,400 acre-feet, which would be offset by its Beaumont Basin storage account of 39,725 acre-feet. At an annual deficit of 4,400 acre-feet, the storage account would be exhausted in approximately nine years (BCVWD UWMP,[17] P. 4-37). Based on the UWMP estimated demand projections beyond 2020 and the unavailable non-potable water supply, the water deficit will continue to increase causing BCVWD to exhaust its storage account in sooner than nine years.

Additional purchases of imported water will be required to meet the projected water demand through 2035. BCVWD currently receives 3,040 AFY of the SGPWA allocation of SWP water. An additional 4,400 to 9,800 AFY would be required to meet water demands through 2035. To reduce dependency on imported water supplies BCVWD is exploring other alternatives such as conservation, a stormwater capture project, implementation of a groundwater extraction system in San Timoteo Creek, and implementation of a high nitrate groundwater extraction system at the mouth of Little San Gorgonio Creek in Edgar Canyon for non-potable purposes. BCVWD anticipates purchasing recycled water to offset the use of potable water for irrigation purposes and is therefore exploring opportunities with Yucaipa Valley Water District (YVWD) and the City of Beaumont as sources. Although the five-year drought has been declared over by Governor Brown, the future trend for potable water will build on expanding mandatory water conservation measures, reducing system losses, and developing efficiency standards for indoor and outdoor use.[18]

RECYCLED WATER AND GROUNDWATER RECHARGE

At present, recycled water is not being utilized to offset potable water demands within the City of Beaumont. However, the necessary infrastructure to allow for use of recycled water has been master planned, and components of the recycled water distribution system have been constructed by BCVWD. Additional recycled water infrastructure will be constructed as new development occurs within the General Planning Area. The City has an environmental obligation to discharge a minimum of 1.8 million gallons per day (mgd) to Cooper's Creek to sustain the habitat created therein. After that obligation is met, the remainder is available for distribution as recycled water for irrigation. (2006 GPEIR[19] p. 4.15-5).

The City's current NPDES permit (CA0105376) allows the City to discharge recycled water for irrigation purposes. The three approved recycled water discharge locations are: 1) R-001 Tukwet Canyon Golf Course; 2) R-002 Oak Valley Golf Course; and 3) R-003 BCVWD. The City has requested that the Regional Water Quality Control Board reopen their existing permit and include the requirement for a pretreatment program as well as the requirements for utilizing recycled water for groundwater recharge over the groundwater basins.

BCVWD has an active non-potable water conveyance and storage system used for irrigation purposes, part of which forms a loop around the City of Beaumont. The BCVWD is in the process of developing a facilities plan for a recycled water connection with neighboring Yucaipa Valley Water District, as well as discussions with the City for utilizing recycled water from the City's wastewater treatment plant. Any recycled water which is introduced into

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[17] Beaumont-Cherry Valley Water District, *2015 Draft Urban Water Management Plan*, November 2016. (Available at http://www.bcvwd.org/pdf/BCVWD_UWMP2015.pdf, accessed April 5, 2017.)

[18] State of California, *Executive Order B-40-17*. April 7, 2017. (Available at https://www.gov.ca.gov/docs/4.7.17_Exec_Order_B-40-17.pdf, accessed April 26, 2017).

[19] City of Beaumont, *General Plan Final Environmental Impact Report SCH# 2004061001*, February 2007. Available at the City of Beaumont.

the BCVWD system will offset the existing potable water demand on a gallon for gallon basis. Currently, the District supplies 1,700 acre-feet per year of non-potable water to irrigate landscaping in its service area, with greater expansion expected by 2020. (BCVWD UWMP, p. 9-6).

On July 1, 2003, a five member Watermaster Committee (WC) consisting of representatives from the City of Banning, City of Beaumont, BCVWD, South Mesa Water Company (SMWC), and Yucaipa Valley Water District (YVWD) was appointed by the State of California Superior Court to manage the Beaumont Basin. The Watermaster is charged with developing and implementing a groundwater management plan for the Beaumont Basin, including water quality and quantity considerations. The Watermaster is responsible for providing the legal and practical means of ensuring that the waters of the Basin are put to maximum beneficial use (BBW,[20] pp. 1-1 to 1-3). Additionally, the Watermaster is responsible for maintaining an annual account of all water artificially recharged in the Beaumont Basin, as well as any losses of water supplies or changes to Safe Yield resulting from such recharge water. Sources of groundwater recharge include imported water from the SWP, recycled water, and new water sources developed in the basin since July 2003. The Watermaster has maintained the accounting of groundwater recharge. However, losses from the basin, if any, have not been estimated. (BBW, p. 3-5).

Groundwater recharge is the augmentation of groundwater, by natural or artificial means, with surface water or recycled water. The City of Beaumont is not permitted to use recycled water from its wastewater treatment plant for purposes of groundwater recharge, but is currently pursuing this with the regulatory agencies. Nearby BCVWD has recharge basins that may be a potential location for recycled water recharge. San Gorgonio Pass Water Agency has planned and designed groundwater recharge basins, but has yet to construct them. Recycled water may not be put to beneficial use all the time, but if recycled water can be utilized for groundwater recharge, there is a better likelihood that it will be utilized all of the time. Recycled water has been deemed a "drought-proof" source of water and according to the Governor's 2016 Update to the California Water Action Plan, the use of recycled water will be encouraged for indirect and direct potable reuse for the foreseeable future.

SEWER

The City of Beaumont controls and manages its sewer collection, conveyance, and treatment system. All sewage generated within the City, as well as some unincorporated areas in Cherry Valley are treated at the Beaumont Wastewater Treatment Plant No. 1 (WWTP), which has a current capacity of 4 million gallons per day (mgd). Treated effluent from the WWTP is discharged to Cooper's Creek, a tributary of San Timoteo Creek. The WWTP currently treats an estimated 3 mgd average daily flow and is currently designed to hit maximum capacity for the City in 2023. The City is currently in the process of upgrading and expanding the WWTP capacity in accordance with requirements from the Santa Ana Regional Water Quality Control Board. The City aims to increase permitted capacity to 6 mgd and upgrade various system components (e.g., add reverse osmosis and membrane bioreactor) so that the effluent is of such quality to be distributed as "recycled water," and used for recharging the groundwater basins as well as for providing the necessary capacity to serve the City past the 2023 horizon. The WWTP expansion is anticipated to occur in 2020, prior to the plant reaching capacity.

[20] Beaumont Basin Watermaster, *2015 Annual Report Draft*, August 2016. (Available at http://documents.yvwd.dst.ca.us/ bbwm/documents/2015annualreport-draft160803.pdf, accessed April 5, 2017.)

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7. SAFETY

OVERVIEW

This chapter of the Existing Conditions Report addresses topics related to safety. This includes an overview of fire and police services, hazards, noise, and natural disaster prevention and preparedness.

KEY FINDINGS

- **Inadequate Fire and Police Stations.** There is a police substation in the Fairway Canyon development. However, the City currently lacks adequate police and fire facilities to serve the west end of the community.
- **Seismic Risk.** The City faces medium to high seismic risk from the fault systems that run through the City but low liquefaction potential in the case of an earthquake.
- **Fire Risk.** Moderate, high, and very high fire hazard severity zones are located in the City. A majority of the high and very high fire hazard severity zones are located in the areas of the City near open space in the northern and southern portions of the City.
- **Wind Hazard vs Opportunity.** High winds are common in the City and, while they are a hazard, might offer the City a source of locally generated renewable energy.
- **Climate Change Impacts.** While there is some uncertainty regarding how quickly climate change will occur, climate change will likely exacerbate many hazards and public health issues in Beaumont, including increased risk of extreme heat, increased fire risk, and decreased air quality.
- The predominant sources of noise in Beaumont are motor vehicles on roadways and trains on the Union Pacific railroad. Future development of noise-sensitive land uses such as homes, schools, hospitals, and recreational areas may be exposed to unacceptable noise levels if located near major noise generators.

ANALYSIS

FIRE SERVICES

The City of Beaumont contracts with the Riverside County Fire Department in conjunction with the California Department of Forestry and Fire Protection (Cal Fire) for City-wide fire protection, emergency medical services, and fire safety education. The County and Cal Fire staff serves not only the City of Beaumont, but also provides shared resources with Calimesa and Banning. The City, through its contract with the County and Cal Fire also has access to seven shared engines in San Jacinto, five shared engines in Desert Hot Springs and nine shared engines in Moreno Valley. Stations are required to have a staff of three plus one paramedic. All engine companies, including Beaumont, have a paramedic on staff. The locations of existing stations within the City of Beaumont are shown on Figure 7.1. Current response times in the City of Beaumont for fire services take approximately 8 to 12 minutes. A five-minute response time is the goal of the City. With the recent increase in residential communities on the west end of town, the City has experienced additional concerns regarding the Fire Department's ability to meet acceptable response times.

POLICE SERVICES

The City of Beaumont Police Department (BPD) is located at 660 Orange Street and is one of 11 cities within Riverside County that operates its own Police Department. The BPD utilizes community-oriented policing and problem solving (COPPS) that works with neighborhoods to emphasize crime prevention. The BPD currently operates with a total of 38 sworn staff members. Notably, this is a significant reduction from previous years. During the years 2010 to 2013, the BPD staffed between 56 and 59 sworn officers. Based on the current population of the City (45,118 as of January 2016 per the California Department of Finance), Beaumont has an officer-to-population ratio of 0.84 sworn officers per 1,000 residents. The target service ratio is 1.0 to 1.2 officers per 1,000 residents. The current ratio is down due to the elimination of multiple joint task forces and auxiliary positions. However, the number of officers assigned to patrol has remained constant.[21] Additionally, the BPD staffs a total of 18 non-sworn staff members.[22]

The City is divided into a five-beat patrol grid with each beat having an assigned officer to patrol the area, as reflected in Figure 7.2. The response times are averaging three minutes for in-progress calls, meeting the City's three-minute response time objective. Based on a City size of approximately 31 square miles, the average coverage per regular patrol is approximately 7.75 to 10.33 square miles. However, over 40% of the area of the City is vacant mountainous territory that does not require routine patrol. This substantially reduces the effective average size of patrol areas.[12, 23]

Traffic and homeless populations are the two main safety issues the BPD currently encounters. However, the City does not have a large homeless population. The City partners with local businesses to distribute educational posters for patrons regarding interactions with homeless populations in an effort keep the existing homeless population low. Traffic congestion and traffic related-incidents, especially around school zones create additional concerns for BPD. Like the Fire Department, the growth on the west end of town presents concerns for the BPD in continuing to meet community needs and response times. Violent crime is down in the City and there are no concentrated crime wave areas. However, the older City core sees the most crime, as it is difficult to build Neighborhood Watch programs into this older area because of the number of vacant businesses and structures. The City currently has some surveillance cameras, but has no plans to increase the number of cameras because there is not enough staff to monitor. The police department currently monitors the cameras from the communications center.[19]

[21] City of Beaumont Draft Municipal Service Review

[22] City of Beaumont Chief of Police, Sean Thuilliez, February 27, 2017 (email communication).

[23] City of Beaumont Chief of Police, Sean Thuilliez, April 26, 2017 (email communication).

FIGURE 7.1 EMERGENCY FACILITIES MAP

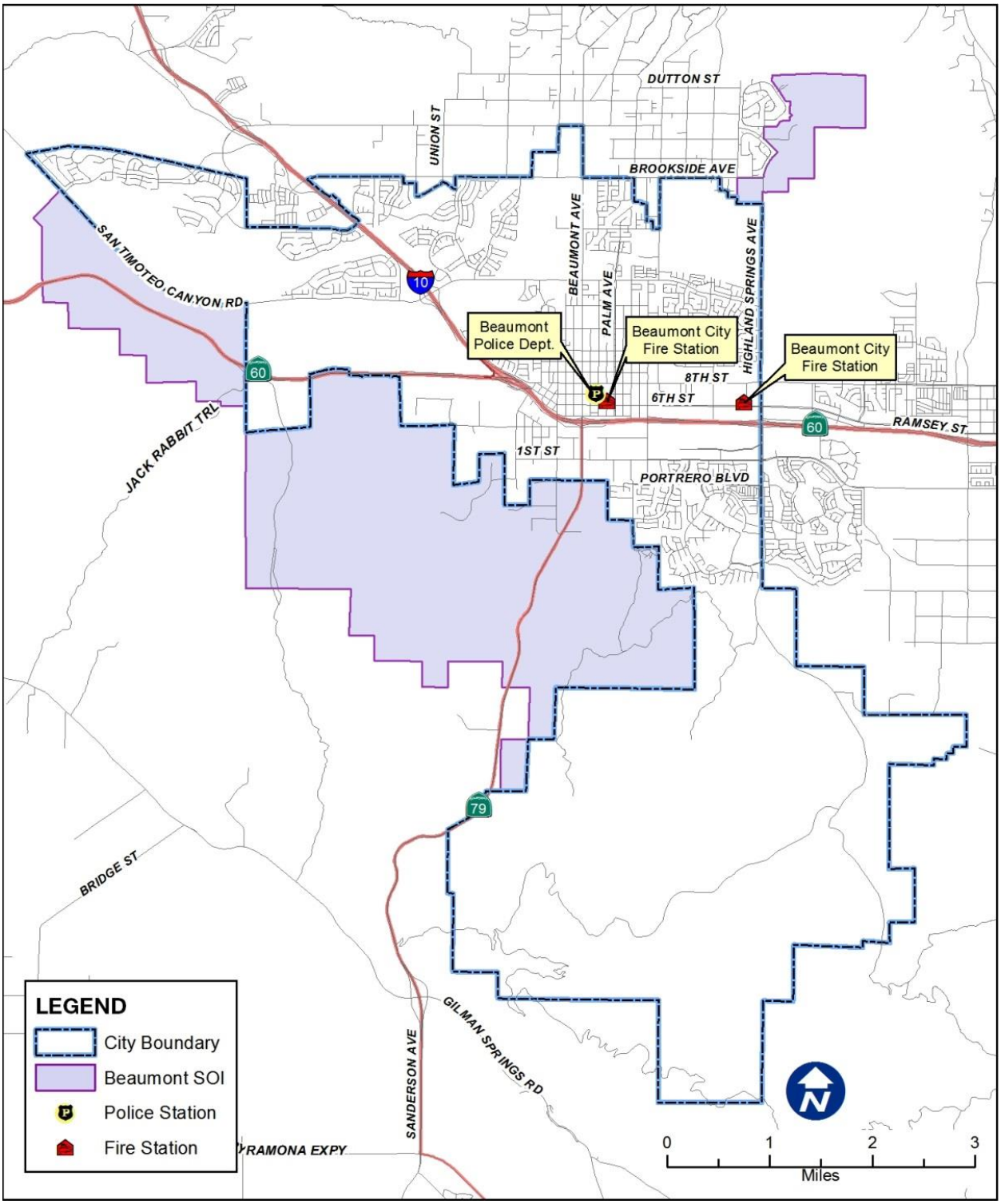


FIGURE 7.2 BEAUMONT POLICE PATROL BEAT MAP

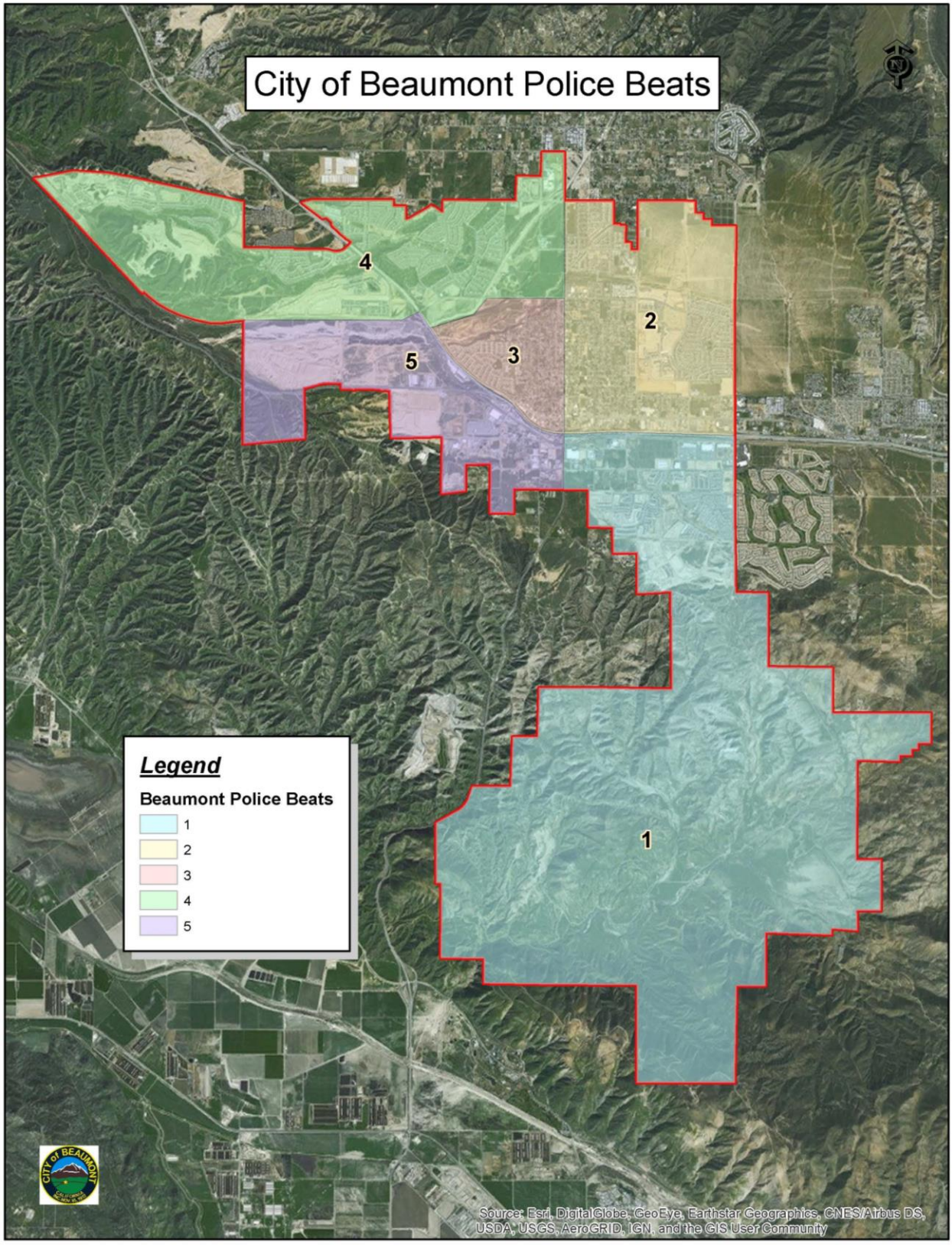


TABLE 7.1 VIOLENT CRIME STATISTICS

Violent Crime	2012	Percentage of Total Crimes
Murder	0	0
Rape	7	7
Robbery	16	16
Assaults (Aggravated)	80	78
Total Violent Crime	**103**	**100%**

Source: Federal Bureau of Investigations-Criminal Justice Information Services Division, Crime in the United States 2012. Available at https://ucr.fbi.gov/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/tables/8tabledatadecpdf/table-8-state-cuts/table_8_offenses_known_to_law_enforcement_by_california_by_city_2012.xls, accessed February 27, 2017.

TABLE 7.2 PROPERTY CRIME STATISTICS

Property Crime	2012	Percentage of Total Crimes
Burglary	192	14
Auto Theft	89	6
Larceny-Theft	1,061	79
Arson	7	1
Total Property Crime	**1,342**	**100%**

Source: Federal Bureau of Investigations-Criminal Justice Information Services Division, Crime in the United States 2012. Available at https://ucr.fbi.gov/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/tables/8tabledatadecpdf/table-8-state-cuts/table_8_offenses_known_to_law_enforcement_by_california_by_city_2012.xls, accessed February 27, 2017.

HAZARDS

The City of Beaumont is located along the northern boundary of the Peninsular Ranges geomorphic province of Southern California and is located in the San Gorgonio Pass that was created by faulting. The Peninsular Range province containing the San Jacinto Mountains is separated from the San Bernardino Mountains to the north, by a narrow, east-west trending valley known as the San Gorgonio Pass. An elevated alluvial plain, known as the Beaumont Plain, extends through the City, which has been incised by recent erosion along local drainage courses; the most prominent of which include the San Timoteo and Cooper Creeks.

SOILS

Liquefaction is a phenomenon in which loose, water saturated, granular soils temporarily behave similarly to a fluid when subjected to high intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) shallow groundwater, 2) low-density silty or fine sandy soils, and 3) high intensity ground motion. Areas within Riverside County susceptible to liquefaction hazards have been depicted within the County of Riverside's General Plan. The City of Beaumont has areas of low and moderate liquefaction susceptibility as reflected on Figure 7.3.

Ground subsidence refers to the sudden shrinking or gradual downward settling and compaction of the soil and other surface material with little or no horizontal movement. It may be caused by a variety of human and natural activities including groundwater withdrawal and ground shaking due to earthquakes. Land subsidence and associated fissuring have been documented in some areas of Riverside County. The City of Beaumont has known areas susceptible to ground subsidence as identified on Figure 7.4. The majority of the existing City is in the low susceptible areas, but some of the areas in the western portion of the City, where newer development is proposed, are in a moderate susceptibility area. Future development would need to make sure geotechnical analyses are completed in order to reduce impacts from ground subsidence.

Expansive soils have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be widely dispersed and can occur in hillside areas, as well as low-lying alluvial basins. Although expansive soils are now routinely alleviated by following the Building Code, problems related to past inadequate grading or site preparation practices constantly appear. Expansive soils are not the only cause of structural distress in existing structures. Poor compaction and construction practices, settlement and landslides can cause similar damage, but require different mediation efforts. Once expansion has been verified as the source of the problem, mitigation can be achieved through reinforcement of the existing foundation or through the excavation and removal of the expansive soils in the affected area.

FIGURE 7.3 LIQUEFACTION SUSCEPTIBILITY MAP

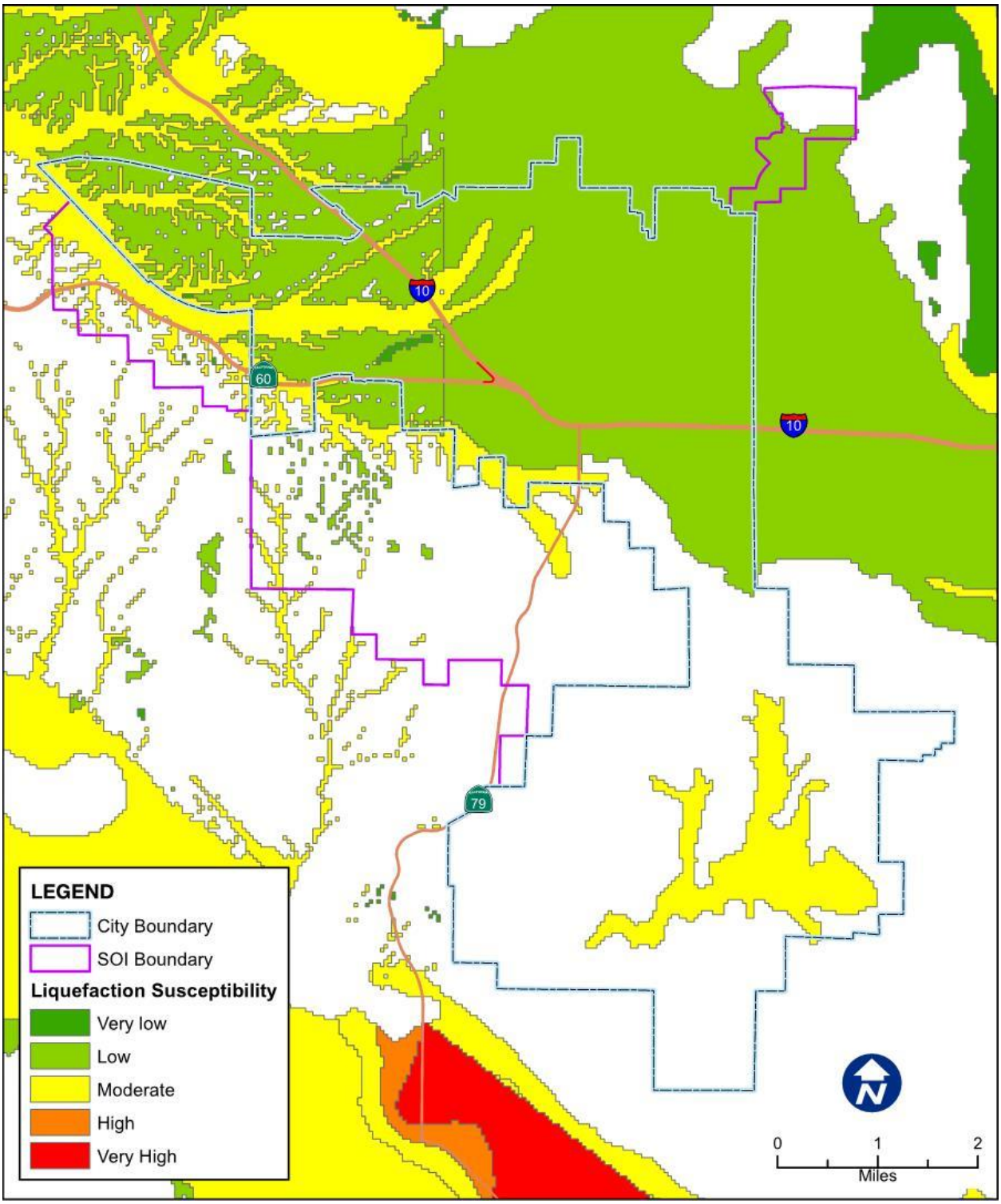
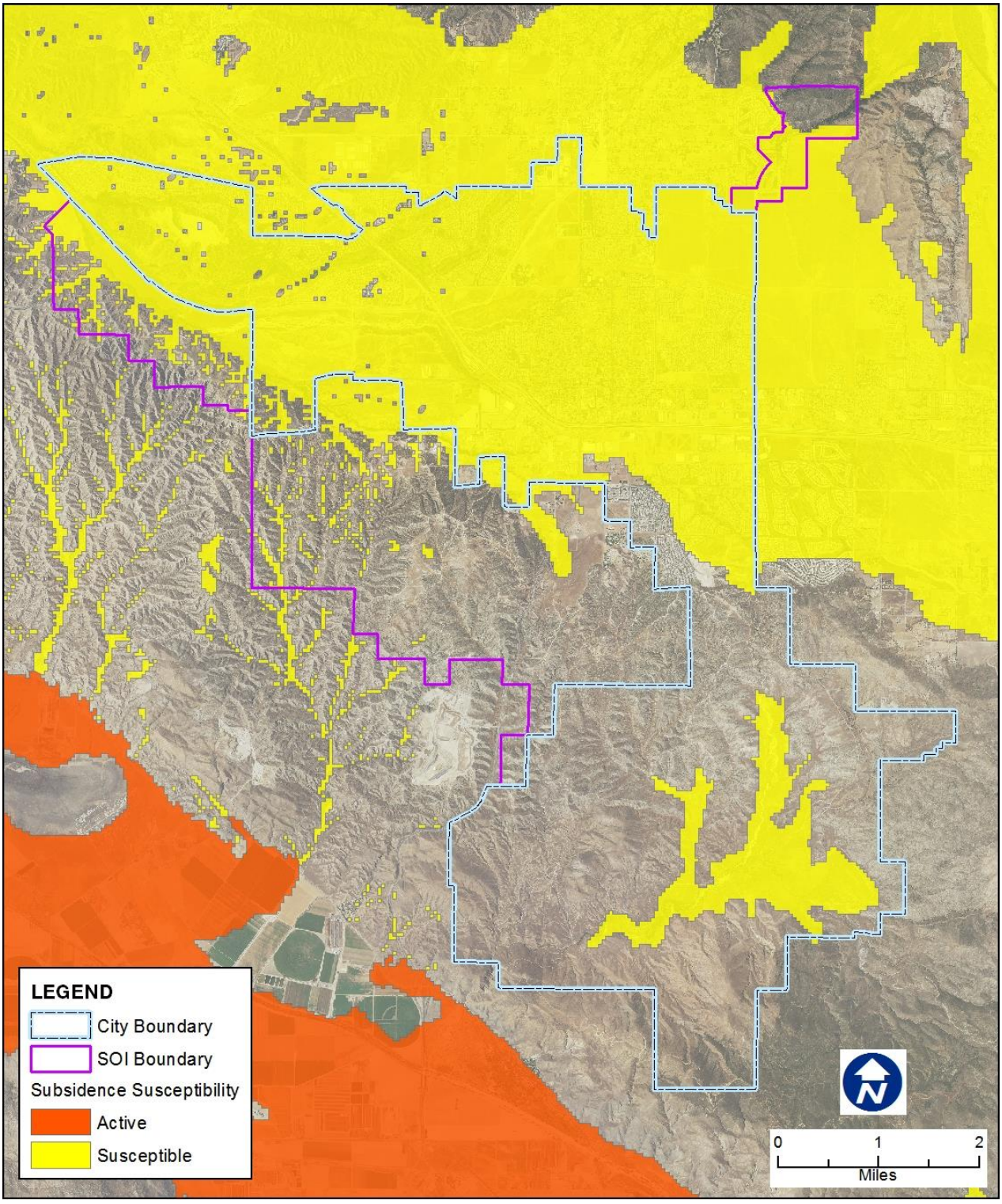


FIGURE 7.4 GROUND SUBSIDENCE MAP



FIRE

Moderate, high, and very high fire hazard severity zones are located in the City, both within the existing city limits and in the sphere of influence. A majority of the high and very high fire hazard severity zones are located in the areas of the City near open space; such as the northern portion of the city near the San Bernardino Mountains, as well as the southern portion of the City, near the open spaces along State Route-79 as reflected in Figure 7.5.

WINDS

High winds are common in the Pass Area and in Beaumont. High winds can be hazardous and result in property damage or risk to residents from falling trees or limbs, damaged power lines, roofs, blowing sand/dust, and soil erosion. Wind-driven sand/dust and soil erosion effects can become acute when soils are exposed during grading and construction activities, or in the course of agricultural tilling and soils preparation. High winds in the City are influenced by the City's proximity to the San Gorgonio Pass, which is one of the windiest places in southern California. The prevailing winds are from the west in spring, summer and early fall. During summer thunderstorms, the winds will sometimes be from the southeast. The westerly winds that blow through the far eastern portion of the Pass are a function of the marine air layer, which develops over Coastal Southern California. When this layer attains a thickness of over 3,000 feet (a condition associated with spring and early summer), it pours cool air through the San Gorgonio Pass and into the Coachella Valley. As such, there should be considerations aimed at mitigating dangers posed by high winds and/or utilizing wind as a renewable energy source.

SEISMIC HAZARDS

The City of Beaumont is located within a seismically active region located at the junction of the Transverse Ranges and the Peninsular Ranges. These two physiographic provinces experience continual seismic activity associated with the lateral movement of the North American and Pacific tectonic plates. The San Andreas Fault system, located northeasterly of the City, is believed to form the boundary between these two plates, although some of the seismic motion is distributed to nearby, related faults. Important faults that could affect the City in the future are identified in Figure 7.6, and include the San Jacinto Fault, the San Andreas Fault Zone, the Banning Fault, and the Beaumont Plains Fault Zone.

FLOOD HAZARDS

The Riverside County Flood Control and Water Conservation District (District) provides flood control facilities planning, design, operation, and maintenance within the City limits. The District uses the Beaumont Master Drainage Plan to guide facilities that are needed for current and anticipated future growth. The District has several flood control facilities currently within the City, including, channels, basins, spreading grounds, and culverts.[24]

Flooding within the Planning Area has historically resulted from seasonal storms. Winter storms occur typically between November and April, with the greatest frequency of winter storms occurring between December and March. Winter storms are typically of Pacific origin generated by the interaction of cold Polar Pacific and warm Tropical Pacific air masses. Resulting storm fronts then track eastward over the basin encompassing the City. Precipitation from these storms occasionally lasts for several days, with higher rainfall amounts recorded in the nearby mountains than on the valley floor. Local winter storms may occur concurrent with strong cold fronts or

[24] Riverside County Flood Control and Water Conservation District, *Report on Master Drainage Plan for the Beaumont Area, Zone Five,* July 1983. (Available at http://rcflood.org/Downloads/Master%20Drainage%20Plans/Updated/Zone%205/Reports/BeaumontMDP_report.pdf, accessed 4/26/17).

deep upper level low pressure centers, and like localized summer storms, may be of high intensity with concentrated precipitation over small areas.

Summer storms normally occur at the end of the dry season and occur more frequently over mountainous portions of the Basin. These storms normally result from moist air flowing into the region from the south and east, and while relatively small in scale, can be severe in intensity.

FIGURE 7.5 FIRE HAZARD SEVERITY ZONES MAP

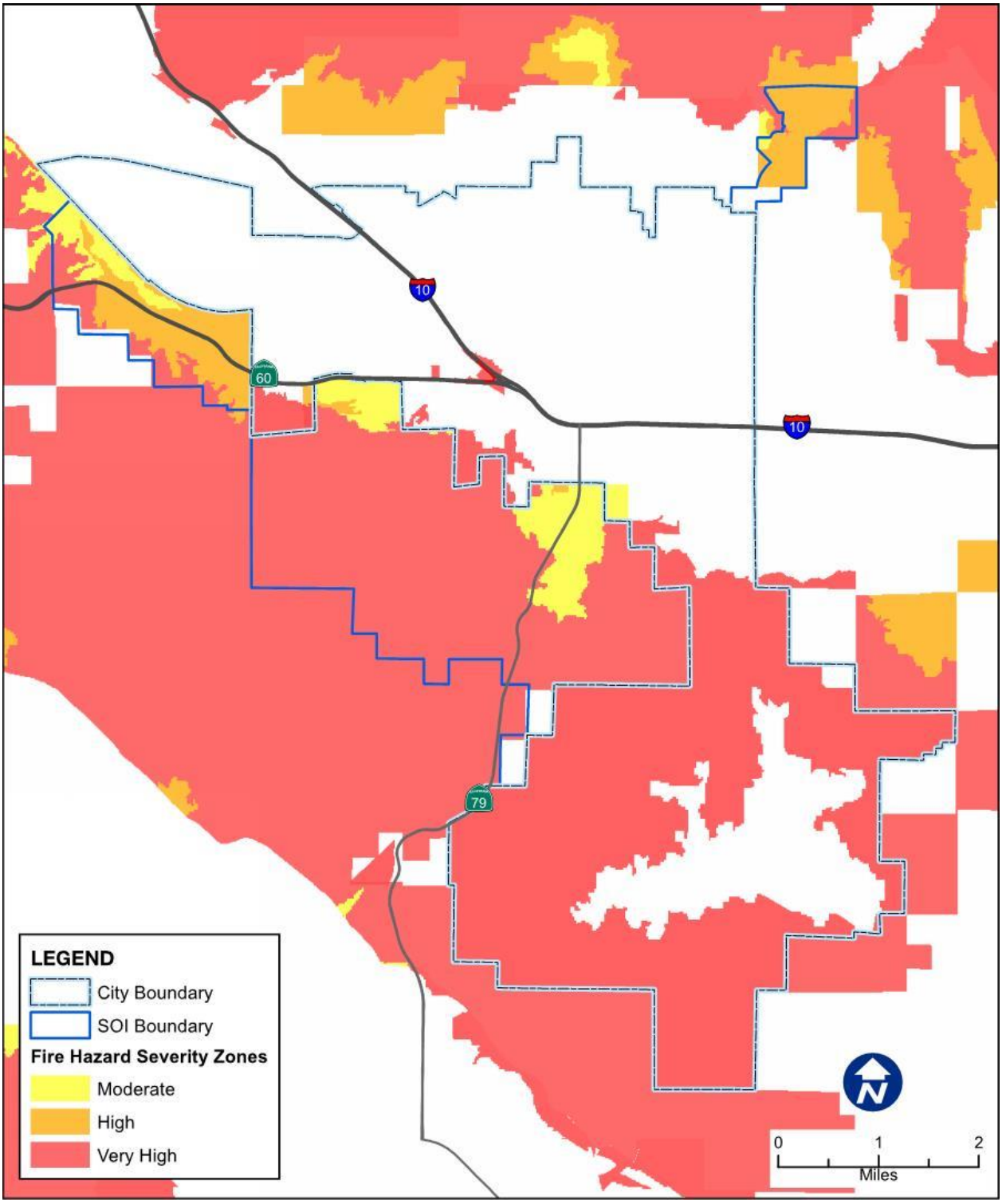


FIGURE 7.6 FAULT ZONES MAP

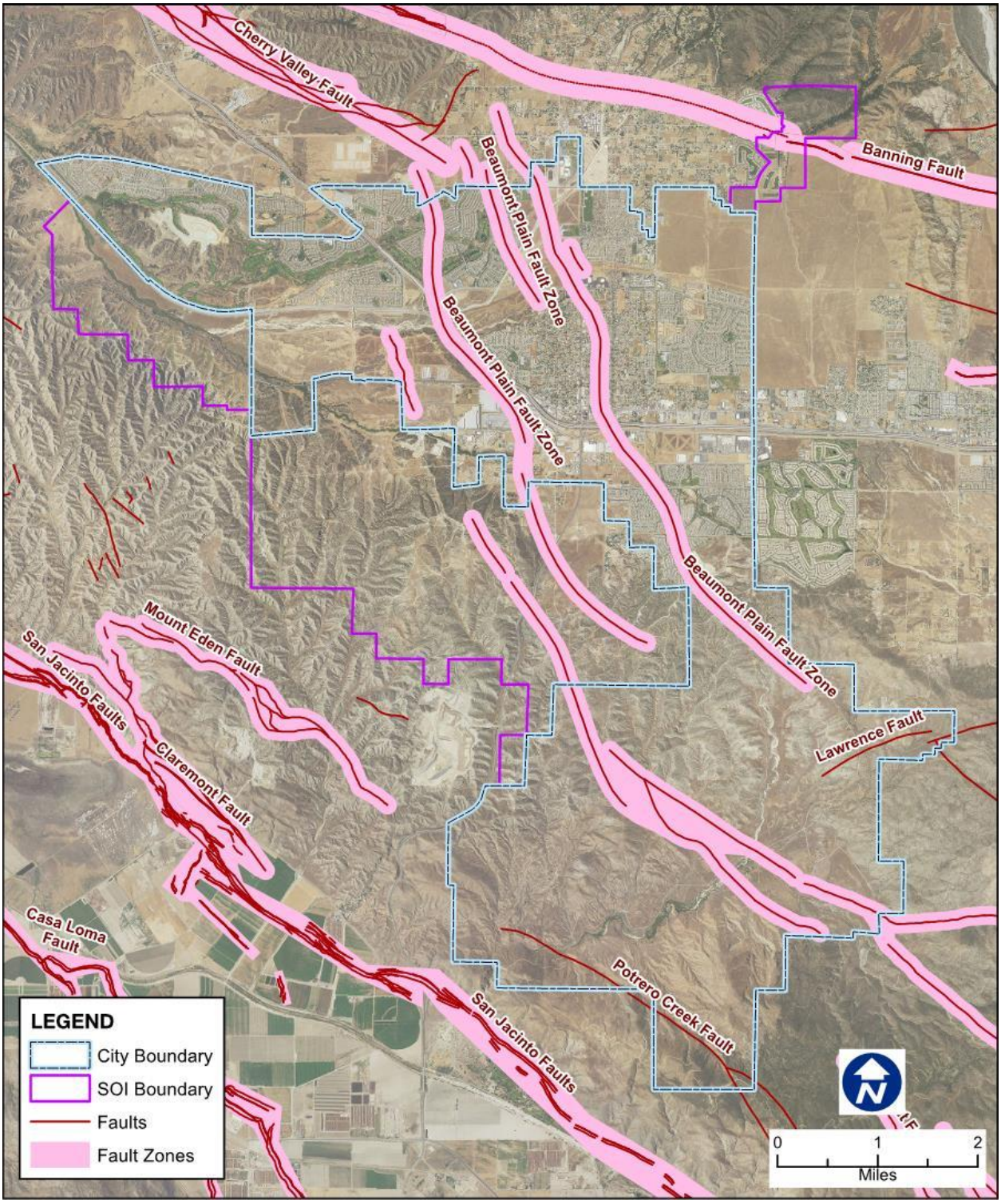
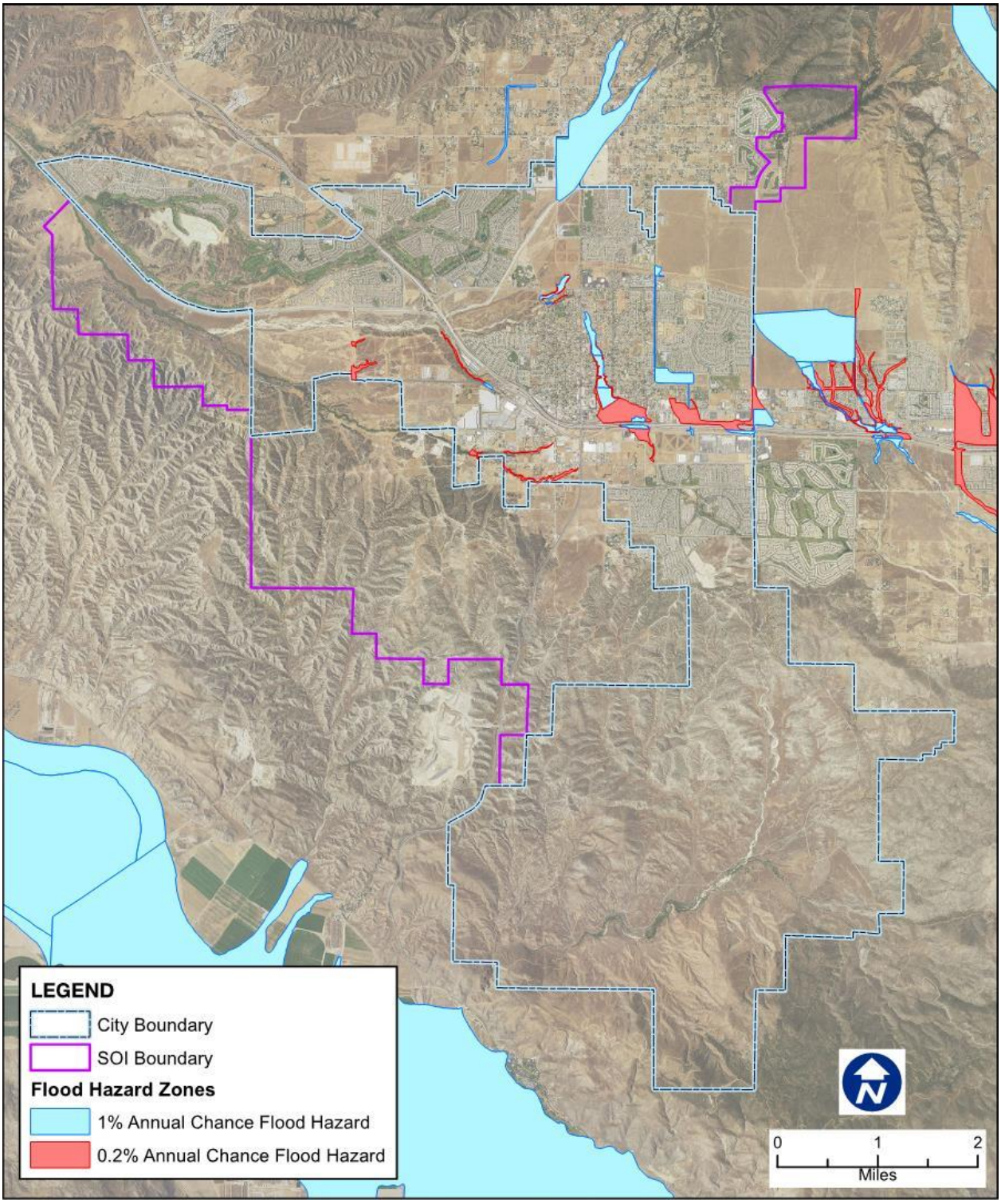


FIGURE 7.7 FLOOD HAZARDS MAP



Mean annual precipitation in the region ranges from three inches in desert areas to over 35 inches in the San Bernardino and San Jacinto Mountains. Regionally, the dry summer months of June, July, and August in both desert and mountain regions regularly yield less than one half-inch of precipitation. Most of the rainfall occurs during the cooler months of November through March, but occasional high-intensity thunderstorms and tropical storms occur in late summer and early fall. Although the ground may be generally dry at the beginning of a storm, sufficient amounts and intensities of rainfall can saturate the surface, substantially reducing percolation and increasing runoff; particularly areas mapped on Figure 7.7.

NATURAL DISASTER PREVENTION AND PREPAREDNESS

The City of Beaumont has an adopted Emergency Operations Plan (EOP) and Standardized Emergency Management System (SEMS) / National Incident Management System (NIMS). This plan establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts of the various emergency staff and service elements. Further, it is an extension of the State Emergency Plan.

CLIMATE CHANGE IMPACTS

Climate change describes the long-term shift in global and regional weather patterns. This includes average annual temperatures and the timing and amount of local precipitation, the frequency and intensity of extreme weather events, sea level changes, and other aspects of weather. Depending on the extent of these changes, climate change may result in significant social, economic, and environmental consequences for residents and businesses.

TEMPERATURE

Since the early 20th century, average surface temperature worldwide has risen at an average rate of 0.15°F per decade (1.5°F per century). Average surface temperatures across the lower 48 states have risen at an average rate of 0.14°F per decade (1.4°F per century). In the US, average surface temperatures have risen more quickly since the late 1970s (0.36 to 0.55°F per decade), with seven of the top ten warmest years on record occurring since 1998.

Scientists predict that over the next century, global temperatures will increase between 2.5°F and 10.4°F, depending upon the amount of future emissions and how the earth responds to those emissions. For California, the average annual temperature is expected to rise 1.8°F to 5.4°F by 2050 and 3.6°F to 9°F by the end of the century. For the Beaumont area, scientists expect average temperatures to increase between 3.7°F and 6.7°F as shown in Figure 7.8

These long-term temperature increases will be experienced along with short-term variation (daily, annual, and multi-year) in temperature related to earth system changes such as El Niño, La Niña, or volcanic eruptions. As a result, temperatures for a single day or year may be higher or lower than the long-term average.

EXTREME HEAT EVENTS

Beaumont is likely to see a significant increase in the number of days when temperature exceeds the extreme heat threshold of 101°F. Between 1950 and 2011, the average number of extreme heat days was four. Under the lower emissions scenario by 2050, the number of extreme heat days could increase to more than 30 per year, and more than 50 per year in the high emissions scenario. Extreme heat events will impact agriculture, public health and even lead to more heat-related deaths, especially for vulnerable populations.

FIGURE 7.8 TEMPERATURE: DEGREES OF CHANGE MAP (1960–2080)

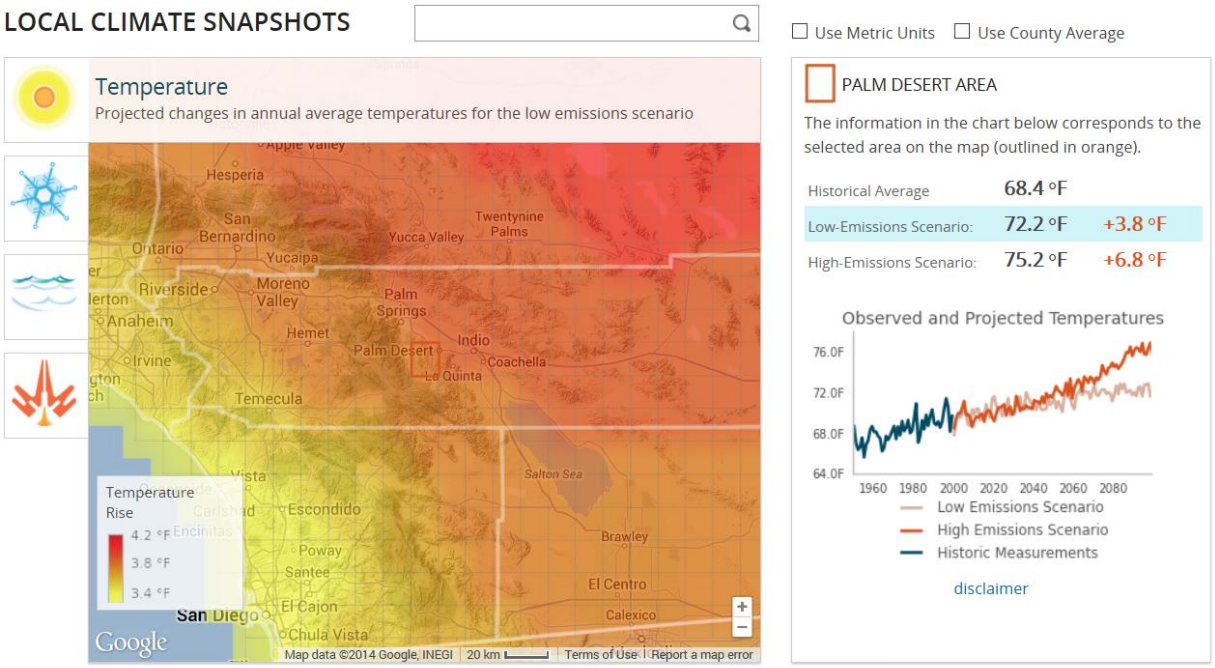
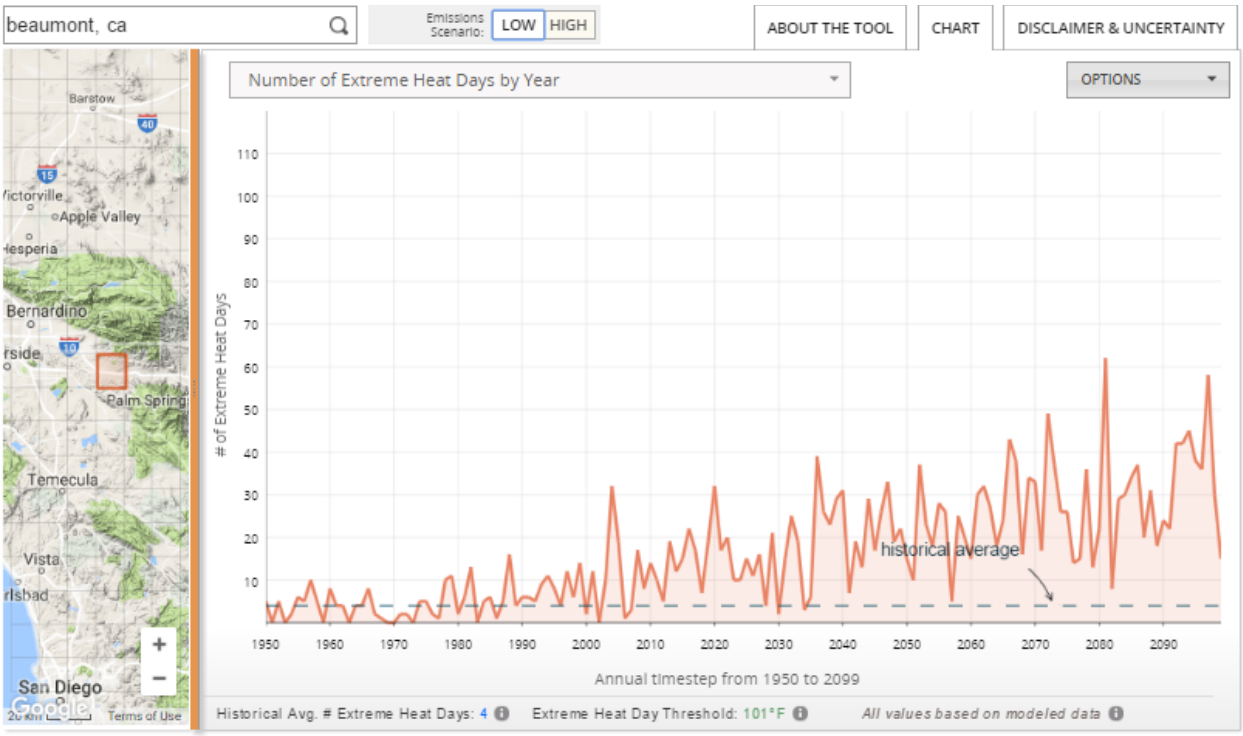


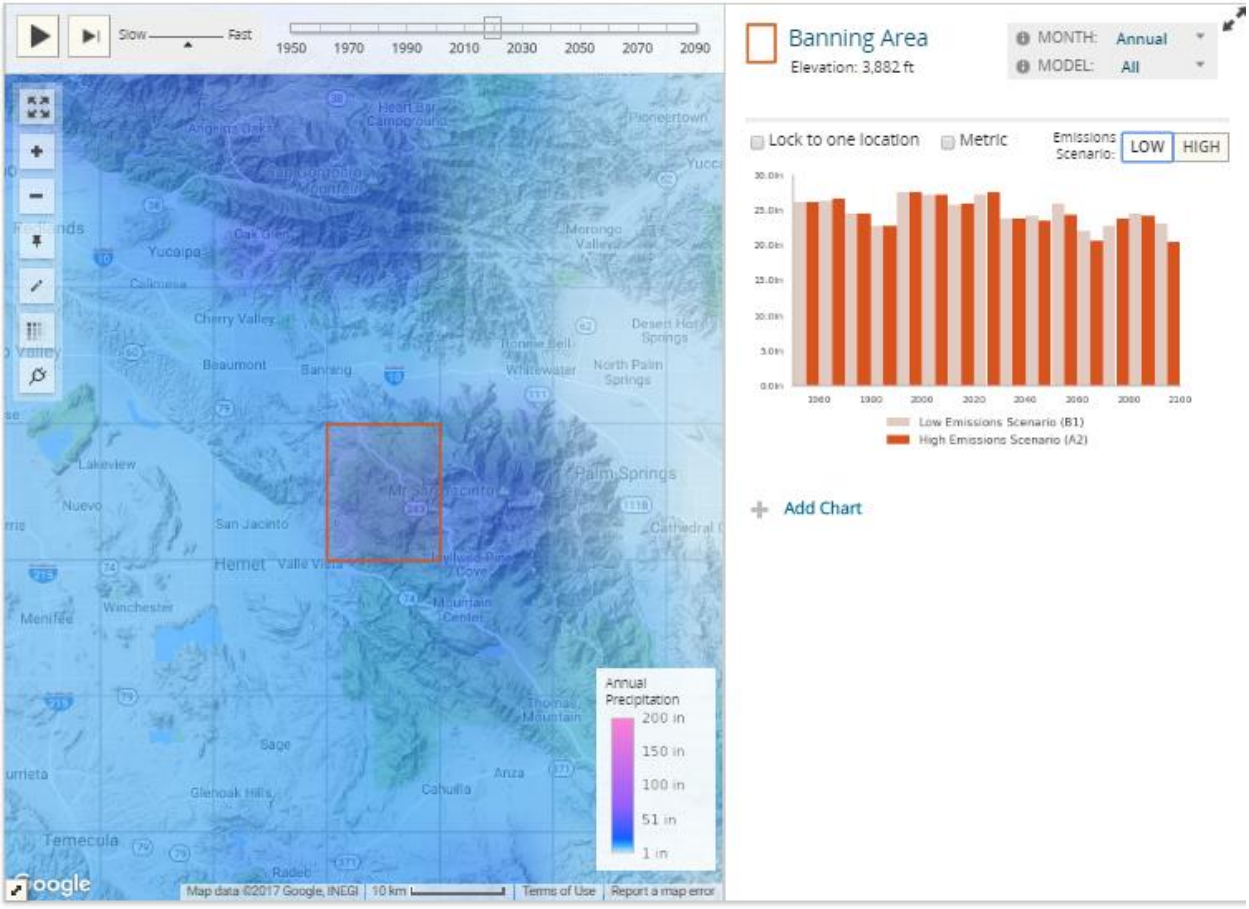
FIGURE 7.9: NUMBER OF EXTREME HEAT DAYS BY YEAR



PRECIPITATION

Research suggests that in California, climate change is likely to decrease annual precipitation amounts by more than 15% by the end of the 21st century. In Beaumont, precipitation is expected to decline over the next century, falling from around 16.2 inches per year to approximately 14.8 inches per year. Seasonal precipitation will change more significantly with March and April receiving less rainfall than in the past. As a result of the seasonal change, Beaumont will likely experience longer periods of drought, as the summer dry season starts earlier in the spring and extends later into the fall.

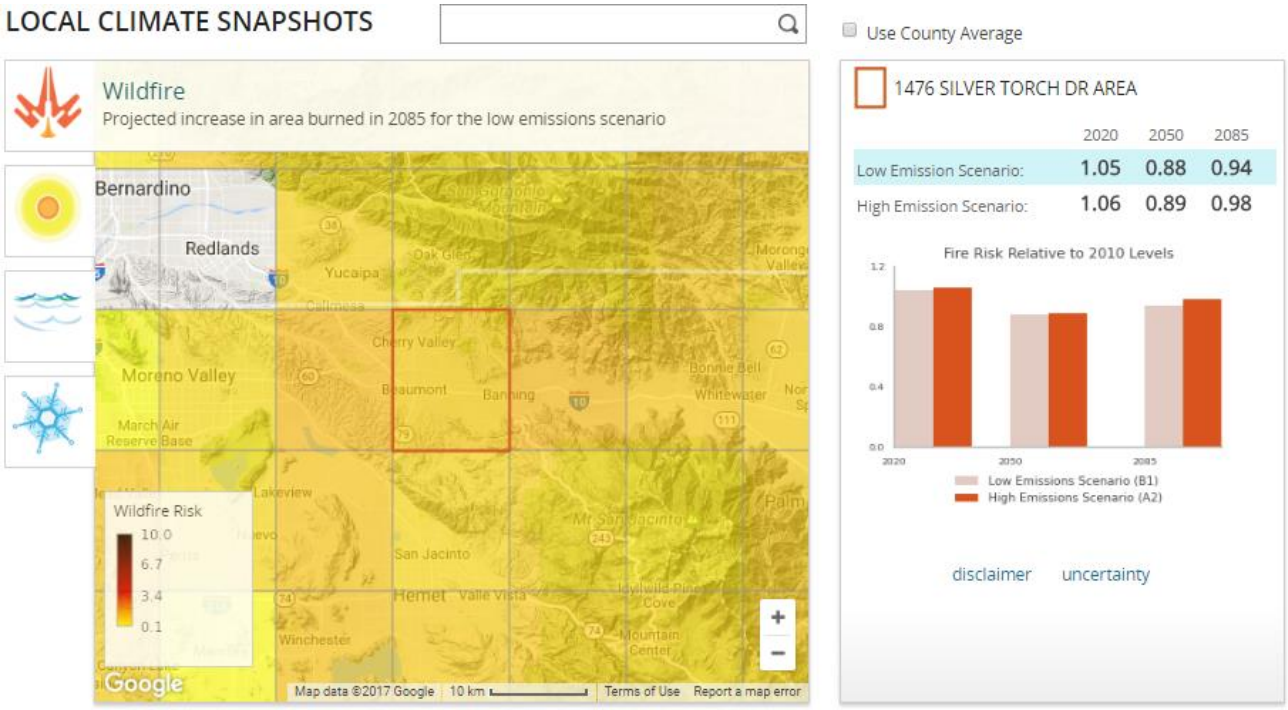
FIGURE 7.10 ANNUAL PRECIPITATION



FIRE HAZARDS AND EMERGENCY MANAGEMENT

Increased temperatures and drier vegetation will lead to more severe and frequent wildfires present new risks and uncertainties that will affect emergency management. Over the next few decades there is a projected increase of 106% (1.06) in area burned by wildfires. An increase in wildfires not only leads to short-term safety issues, but it can lead to long-term public health impacts poor air quality.

FIGURE 7.11: PREDICTED WILDFIRE RISK CHANGE



OTHER POTENTIAL CHANGES

Climate change may also create a variety of changes for California and Beaumont including:

- **Snowpack**: At least a quarter of the Sierra snowpack will be lost by 2050. The snowpack provides natural water storage for the state.
- **Biological resources**: Two-thirds of California's native flora will experience a greater than 80% reduction in suitable climate range within a century.
- **Agriculture:** May very likely see significantly declining yields due to warming.

In California, studies predict that conditions will become hotter and drier, with decreased snow levels and accelerating rates of sea level rise. California should also expect an increase in the intensity of extreme weather events, such as heat waves, droughts, and floods. California's extreme warm temperatures, which have historically occurred in July and August, will most likely extend into June and September.

VULNERABLE POPULATIONS AND PUBLIC HEALTH

A number of factors contribute to the vulnerability of an individual to extreme heat. Internal factors include age (over 65 and infants and children) and medical conditions (e.g., cardiovascular disease, diabetes, and mental illness). For Beaumont, this will include its large aging population including 67% of residents over age 50. It also includes the over 12% of the population that is under age 5 that is growing as the number of young children and more families move to Beaumont. External factors also contribute to climate change vulnerability such as homelessness, poverty, and factors that typically correlate with lower-income people and racial minorities such as living in proximity to freeway, low tree coverage, and lack of lack of access to resources like air conditioning or a vehicle.

Climate change presents serious health risks to California's most vulnerable populations, particularly extreme heat events. The effects of extreme heat on human health are well-documented. Increased temperature or extreme

heat days can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency department visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and even death. Exposure to extreme heat during pregnancy is related to lower birth weight, especially in the second and third trimesters. Climate change and rising temperatures are also associated with lower air quality. Atmospheric warming associated with climate change has the potential to increase ground-level ozone in many regions, and high ozone levels have been linked with higher rates of heart disease. Beaumont already has above-average ozone levels, so climate change could further increase ozone levels and exacerbate health issues for the 7% of Beaumont's population with heart disease. Increased wildfires from climate change can also lead to a decrease in air quality that can be particularly harmful to vulnerable populations such as children and infants, and seniors.

Because climate change impacts are closely intertwined with vulnerable populations and inequities, climate adaptation planning presents a unique opportunity to address some of the external factors that contribute to climate change vulnerability, which are also root causes of inequity. Addressing these underlying causes can help increase resilience for all Beaumont community members.

NOISE

Noise sources in the Planning Area fall into five basic categories: freeways, aircraft over flights, traffic from local streets, noise from railroad operations, and stationary sources. The Safety Element of the City's 2007 General Plan (Beaumont, City of, 2007) notes that ambient noise in the City is dominated by transportation-related noise, mainly from I-10 and SR-60, and these remain the dominant noise source today. These noise sources are described below, as well as any potentially significant sources of vibration.

TRANSPORTATION NOISE

The predominant noise source in Beaumont, as in most communities, is motor vehicles. The roadway system in the Planning Area includes a range of facilities: regional freeways, major highways, and other arterial, collector, and local streets. Regional connectivity to the Planning Area is provided by I-10, SR-60, and SR-79. Major roadways within Beaumont include Potrero Boulevard, 6th Street, Oak Valley Parkway/14th Street, Beaumont Avenue, Highland Springs Avenue, and Brookside Avenue. Higher volume roadways within the Planning Area include Beaumont Avenue/SR-79 (23,400 daily vehicle trips on Beaumont Avenue in the 6th Street area, and 12,500 daily vehicle trips on SR-79 near the intersection with California Avenue), Highland Springs Avenue (30,300 daily vehicle trips near I-10, and up to 11,800 daily vehicle trips north of 6th Street), and 6th Street (10,300 daily vehicle trips at the Beaumont Avenue intersection) (Beaumont, City of, 2007).

RAILROAD OPERATIONS NOISE AND VIBRATION

Freight rail service along the Union Pacific Railroad lines located south of and parallel to Oak Valley Parkway and I-10 are also responsible for generating substantial noise levels in the Planning Area. According to the Federal Railroad Administration, the Union Pacific Railroad experiences up to 17 daytime trains (6AM to 6PM) and 17 nighttime trains (6PM to 6AM) on a daily basis (Federal Railroad Administration, 2016). The railroad is also a potentially significant source of ground-borne vibration and noise. The other noise sources discussed in this section do not generally rise to the level of being potentially significant sources of vibration.

CONSTRUCTION, STATIONARY, AND OPERATIONAL NOISE

Other noise generators in Beaumont include industrial operations, construction activities, special event noise, commercial activities that include live music, and lawnmowers and leaf blowers, which can create substantial noise problems. Loading and materials transfer areas, outdoor materials warehousing operations, and other acoustically

unscreened operations may also create issues of noise impact and use compatibility. Certain types of construction activities, such as pile driving, can also be temporary but significant sources of ground-borne vibration.

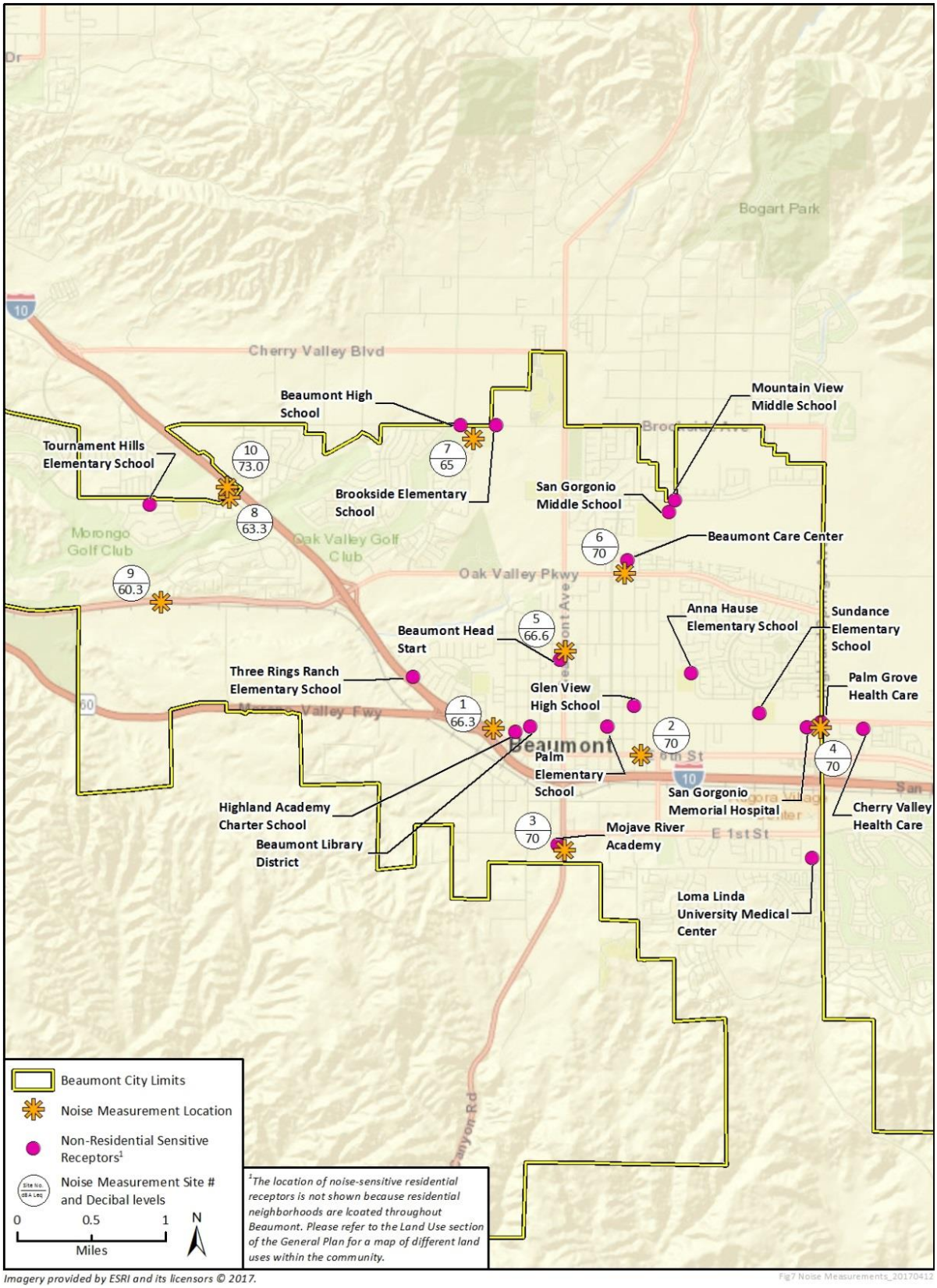
The operation of mechanical equipment is another important source of potentially significant noise. This category includes refrigerator units, chillers, and heating/air conditioner equipment associated with commercial centers. Noise from roof-mounted equipment is especially effective at penetrating into bordering neighborhoods and impacting sensitive receptors. The continual drone associated with fans and compressors can degrade the enjoyment of the outdoors and negatively affect the quality of life for nearby residents.

SENSITIVE NOISE RECEPTORS

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each land use type. The City of Beaumont General Plan defines noise-sensitive land uses as schools, parks, and areas developed as residential (Beaumont, City of, 2007). Additional noise sensitive land uses include libraries, churches, and hospitals and nursing homes. Golf courses, recreational areas, and parks can be sensitive to noise disturbances. These uses are considered sensitive because the presence of excessive noise may interrupt normal activities typically associated with the use. Sensitive noise receptors are located throughout the City, as shown in Figure 7.12. These noise-sensitive receptors may also be sensitive to high levels of ground-borne noise and vibration, but are not generally located in close proximity to the railroad, which is the only area in Beaumont where long-term ground-borne noise and vibration may rise to this level of significance.

Motor vehicle and train traffic are the predominant source of ambient noise in the Planning Area. Sensitive noise receptors such as residential neighborhoods, hospitals, recreational areas, and schools are located throughout the Planning Area and are exposed to varying ambient noise levels based on proximity to high volume roadways, the railroad, and commercial or industrial operations.

FIGURE 7.12 COMMUNITY NOISE SURVEY LOCATIONS AND SENSITIVE RECEPTORS



Imagery provided by ESRI and its licensors © 2017.

Fig7 Noise Measurements_20170412

COMMUNITY NOISE SURVEY

The greatest source of noise in the Planning Area is traffic on major roadways and freeways. Motor vehicle noise is of concern due to the high number of individual events that create sustained noise levels. As such, ambient noise levels would be expected to be highest during daytime and rush hour, unless congestion substantially slows vehicle speeds.

In order to characterize current ambient noise levels in Beaumont, a Community Noise Survey was carried out for this report. Ten 15-minute noise measurements were recorded during afternoon peak traffic hours, between 3:35PM and 6:15PM on April 12, 2017, using an ANSI Type II integrating sound level meter (refer to Technical Appendix B for noise measurement data). The locations for these measurements were chosen based on proximity to roadways, developed uses, and noise sensitive receptors, during PM peak traffic hours, in order to show peak noise levels from these transportation noise sources. Table 7.3 shows these noise measurement locations and nearby noise sensitive receptors.

The results of the Noise Survey demonstrate that, as expected, noise levels are highest near high-volume roadways such as I-10 (73 dBA, Location 10), SR-79 (70 dBA, Location 3), 6th Street (70 dBA, Location 2), and Highland Springs Avenue (70 dBA, Location 4). Noise levels were lowest near lower-volume roadways such as Oak Valley Parkway (60.3 dBA, Location 9), Champions Drive (63.3 dBA, Location 8), and Oak View Drive (65 dBA, Location 7). These Noise Survey results will also be compared to the results of roadway traffic noise contour modeling that will be done for this General Plan Update in order to ensure that the modeling results are generally consistent with real-world conditions.

TABLE 7.3 PROJECT VICINITY NOISE MONITORING RESULTS

Location Number	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	Leq (dBA)[1]	Lmin (dBA)	Lmax (dBA)
1	NW corner of W 6th St & Veile Ave, near residential, across street from church	4:20PM – 4:35PM	140ft from centerline of 6th St	66.3	60.6	74.2
2	1055 E 6th St, Pioneer Mobile Village	5:53PM – 6:09PM	40ft from centerline of E 6th St	70.0	52.8	91.0
3	East side of Hwy 79, South of 1st St, across from Mojave River Academy	5:10PM – 5:25PM	30ft from centerline of Beaumont Ave/Hwy79	70.0	54.5	91.3
4	West side of Highland Springs Ave, between 6th & 8th St, across from San Gorgonio Memorial	5:23PM – 5:38PM	30ft from centerline of Highland Springs Ave	70.0	53.6	79.9
5	Beaumont Ave directly across from Beaumont Head Start	5:49PM – 6:04PM	30ft from centerline of Beaumont Ave	66.6	44.4	84.8
6	In front of church at 960 Oak Valley Pkwy	4:54PM – 5:09PM	30ft from centerline of Oak Valley Pkwy	70.0	49.1	83.8
7	Oak View Dr, across from Brookside Elementary School	4:24PM – 4:39PM	40ft from centerline of Oak View Dr	65.0	37.4	81.1
8	Champions Dr, by Desert Lawn Dr	3:37PM – 3:52PM	40ft from median of Champions Dr	63.3	55.8	83.8
9	South side of Oak Valley Pkwy, between Apron Ln & Linksman Dr	3:37PM – 3:52PM	30ft from centerline of Oak Valley Rd	60.3	34.5	78.4
10	Desert Lawn Dr, by Champions Dr	3:57PM – 4:12PM	130ft from I-10 median	73.0	66.3	84.9

[1]The equivalent noise level (Leq) is defined as the single steady A-weighted level equivalent to the same amount of energy contained in the actual fluctuating levels over a period of time (i.e., the average noise level). For this measurement the Leq was over a 15-minute period (Leq[15]).

Source: Rincon Consultants, 2017

The City can use these Noise Survey results, the City's noise-related General Plan policies, and the noise and land use compatibility standards shown in Technical Appendix B to practice good noise/land use compatibility planning. The goal of noise/land use compatibility planning is to protect noise-sensitive uses, such as homes, schools, hospitals, and recreational areas, from excessive noise and vibration. The City can achieve this goal in various ways, including:

- Ensuring that noise-sensitive uses are not proposed in areas with potentially high ambient noise levels
- Requiring noise-sensitive developments in such areas to complete noise studies to prove that noise levels will not exceed the City's established noise thresholds and standards
- If it is shown that noise-sensitive development will be exposed to exterior noise levels exceeding the City's thresholds and standards, and it is not feasible or desirable to create sufficient distance separation to meet these thresholds and standards, incorporating noise-attenuating technologies into these developments to reduce interior noise levels to acceptable levels

8. OUR NATURAL RESOURCES

OVERVIEW

This chapter of the Existing Conditions Report addresses topics related to natural resources. This includes an overview of biological resources, air quality, greenhouse gases, solid waste and recycling, and energy.

KEY FINDINGS

The following key finding summarize important trends for this chapter:

- **Existing Polluters.** City does have existing sources of Toxic Air Contaminants. Consideration of policies geared toward requiring CARB's recommended setbacks between sensitive uses and point source polluters and land planning for local job creation to promote reductions in vehicle miles traveled, and mobile source emissions is warranted.
- **Biological Resources.** A variety of wildlife is found in the Planning Area, including a large number of common insects, reptiles, birds, and mammals adapted to development. In addition, the naturally occurring habitats have potential to support various special-status wildlife and plant species. Specifically, a total of 22 special-status plant species and 34 special-status wildlife species have been recorded within a 5-mile radius of the Planning Area. Thirteen of these special-status species have a state and/or federal listing status.
- GHG Emissions: The State of California continues to work towards statewide greenhouse gas emissions. For local governments, best practice has evolved to creating and maintaining comprehensive GHG inventories and establishing a wide breadth of measures for emissions reductions. Data indicates Beaumont has relatively efficient housing stock and might drive somewhat less than regional averages, but uses natural gas at greater than average rates.

ANALYSIS

PALEONTOLOGICAL RESOURCES

The City of Beaumont and surrounding area are underlain by geologic units exposed within the narrow-faulted plain of the San Gorgonio Pass, the San Timoteo Badlands, and the rocky highlands of the San Jacinto Mountains. Geologic units include Mesozoic and older granitic and metamorphic bedrock that have a very low paleontological resource potential due to the heat and pressure of their formation; paleontologically-sensitive deposits of the Mount Eden Formation, San Timoteo Formation, and Pleistocene alluvium; and recent surficial alluvial fan and valley deposits (Morton and Miller 2006; Lancaster et al. 2012).

The paleontologically-sensitive San Timoteo and Mount Eden Formations are exposed within the San Timoteo Badlands in the eastern and southern portions of the city and surrounding area. Stratigraphically below the Mount Eden Formation is the Pliocene to Middle Pleistocene San Timoteo Formation, composed of grayish-green mudrock, yellow-brown medium-grained, poorly indurated lithic arkose, conglomerate deposits with subangular metamorphic pebble clasts, and common reddish-brown paleosols (Albright 1999).

The San Timoteo and Mount Eden Formations have yielded an abundant and diverse fauna that consists of more than 1,700 fossils, including specimens of deer, camel, horse, ground sloth, saber-toothed cat, insectivore, rodent,

birds, fish, amphibian, reptile, mollusk, and plant. The fossils recovered from these deposits help to improve our understanding of the geologic and fossil record for a tectonically active California during the Late Cenozoic and support research that works to constrain dates for paleogeography and paleoclimate reconstructions and the timing of pre-historic faunal migrations.

Quaternary older alluvial deposits underlie a large portion of the city of Beaumont. These sedimentary units were deposited in different types of environments under varying conditions during the Pleistocene glaciation (and interglacial periods) commonly referred to as the Ice Age. Pleistocene alluvial deposits have yielded scientifically significant paleontological resources near the city of Beaumont and throughout Southern California.

Recent alluvial fan, valley, and landslide deposits from the Holocene underlie portions of the city of Beaumont. Holocene age alluvial deposits are typically too young to contain fossilized remains and are usually determined to have a low paleontological resource; however, they may shallowly overlie geologic units with higher paleontological sensitivity.

BIOLOGICAL RESOURCES

The Planning Area, which is located within an area subject to the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), is comprised of mostly developed lands in association with industrial, residential, commercial, and agricultural activities. The few undisturbed natural areas that remain in the Planning Area are dominated by chamise chaparral, Riversidean sage scrub, and annual non-native grassland. Small areas of other native plant communities within the Planning Area include southern cottonwood-willow riparian forest, alluvial fan scrub, riparian scrub, and oak woodland.

A variety of wildlife is found in the Planning Area, including a large number of common insects, reptiles, birds, and mammals adapted to development. The naturally occurring habitats have potential to support various special-status wildlife and plant species. A total of 22 special-status plant species and 34 special-status wildlife species have been recorded within a 5-mile radius of the Planning Area. Thirteen of these special-status species have a state and/or federal listing status. The following Threatened and/or endangered species may be found within the Planning Area:

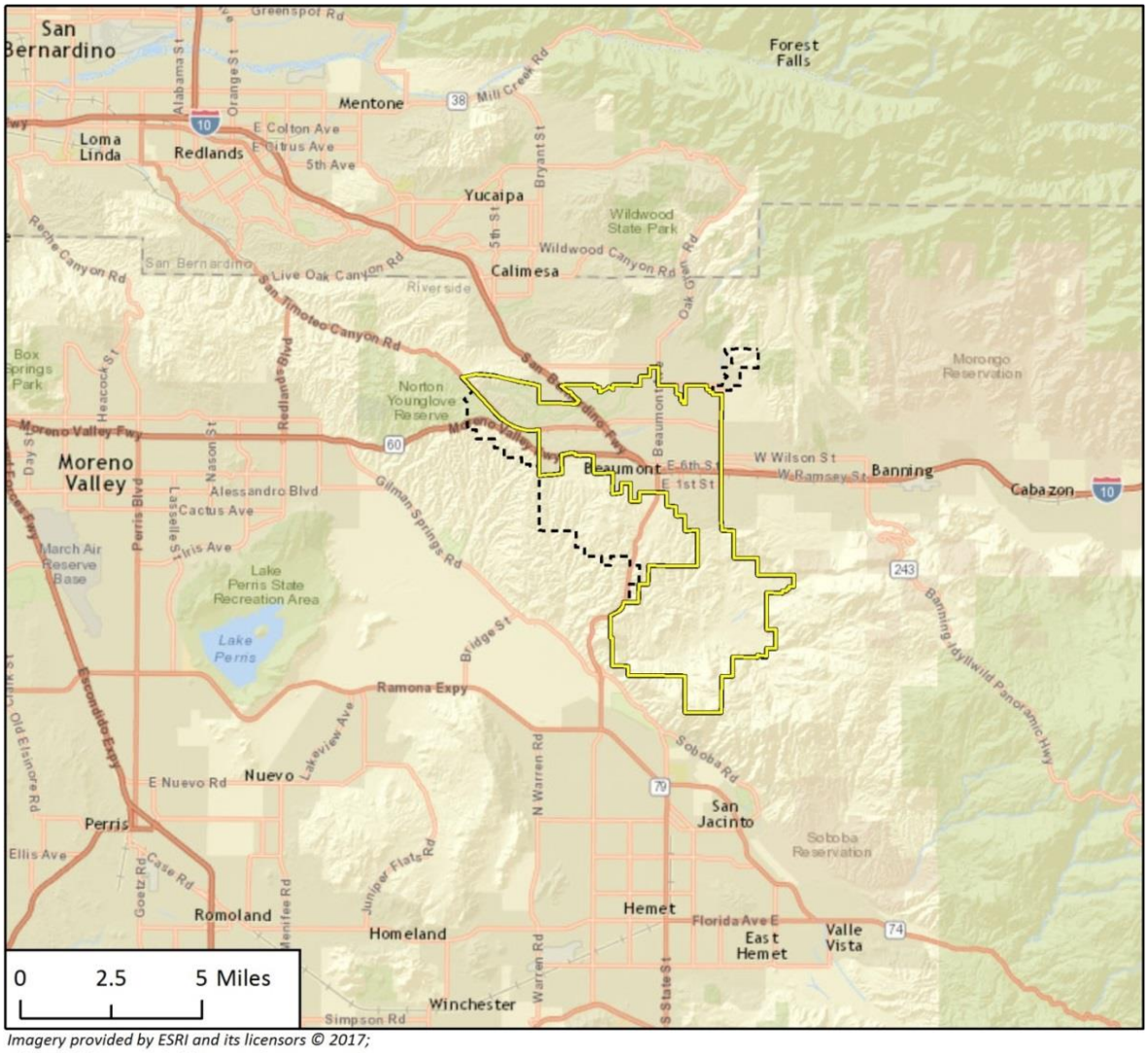
- Coachella Valley Milk-Vetch
- San Jacinto Valley Crownscale
- Mojave Tarplant
- Slender-Horned Spineflower
- Santa Ana River Woollystar
- Swainson's Hawk
- Western Yellow-Billed Cuckoo
- Southwestern Willow Flycatcher
- Coastal California Gnatcatcher
- Least Bell's Vireo
- San Bernardino Kangaroo Rat
- Stephens' Kangaroo Rat
- Lesser Long-Nosed Bat

WESTERN RIVERSIDE MULTIPLE SPECIES HABITAT CONSERVATION PLAN

The Planning Area is located within an area subject to the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP is a long-term regional conservation plan established to protect sensitive species and habitats in western Riverside County. The MSHCP identifies 20 Core Areas, 10 Non-contiguous Habitat Blocks, and 28 Linkages between areas of habitat as the system of conserved lands that would meet the MSHCP goals for habitat preservation and species protection. A definition of each of these areas is provided in Volume 1 of the MSHCP. The MSHCP also established conservation targets within each of the member cities and each of the 16 Area Plans in Western Riverside County covered by the Riverside County General Plan. As a local permittee, the City has adopted the MSHCP. Those portions of the Planning Area that are subject to the MSHCP are shown in Figure 8.3. It is important to note that surveys and any attendant mitigation will still be required for development within those areas not subject to the requirements of the MSHCP.

The Endangered Species Act prohibits the "taking" of endangered species. Taking is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" listed species. The Wildlife Agencies have authority to regulate this "take" of threatened and endangered species. The intent of the MSHCP is for the Wildlife Agencies to grant a "take authorization" for otherwise lawful actions that may incidentally "take" or "harm" species outside of reserve areas, in exchange for supporting assembly of a coordinated reserve system. Therefore, the Western Riverside County MSHCP allows the County of Riverside to take specific plant and animal species within identified areas through the local land use planning process. In addition to the conservation and management duties assigned to the County of Riverside, a property-owner-initiated habitat evaluation and acquisition negotiation process has also been developed. This process is intended to apply to property that may be needed for inclusion in the MSHCP Reserve or subjected to other MSHCP criteria.

FIGURE 8.1 REGIONAL LOCATION



Imagery provided by ESRI and its licensors © 2017;
Additional data provided by Riverside County, 2016.

Beaumont City Limits

Sphere of Influence

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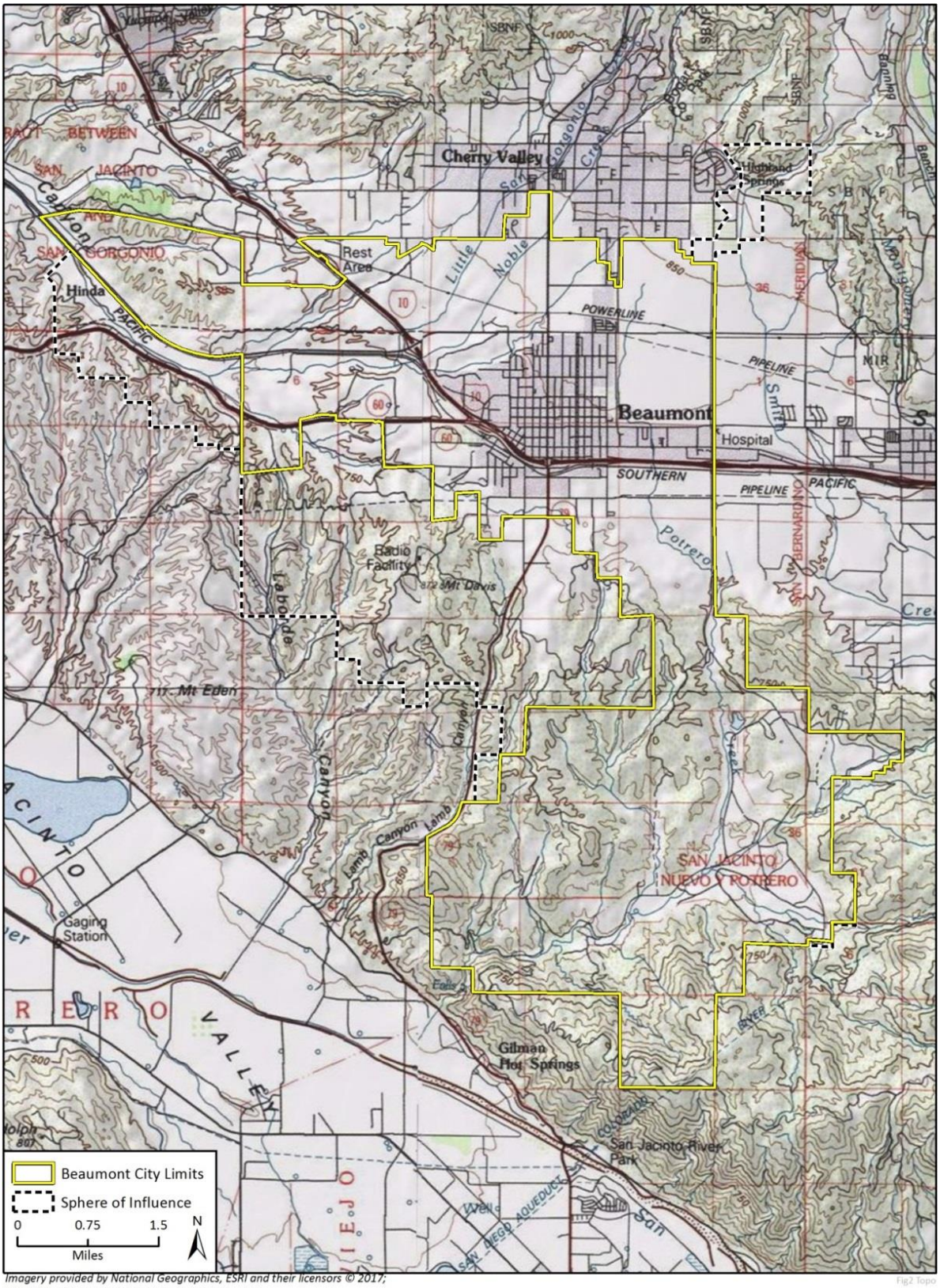
FIGURE 8.2 TOPOGRAPHICAL MAP



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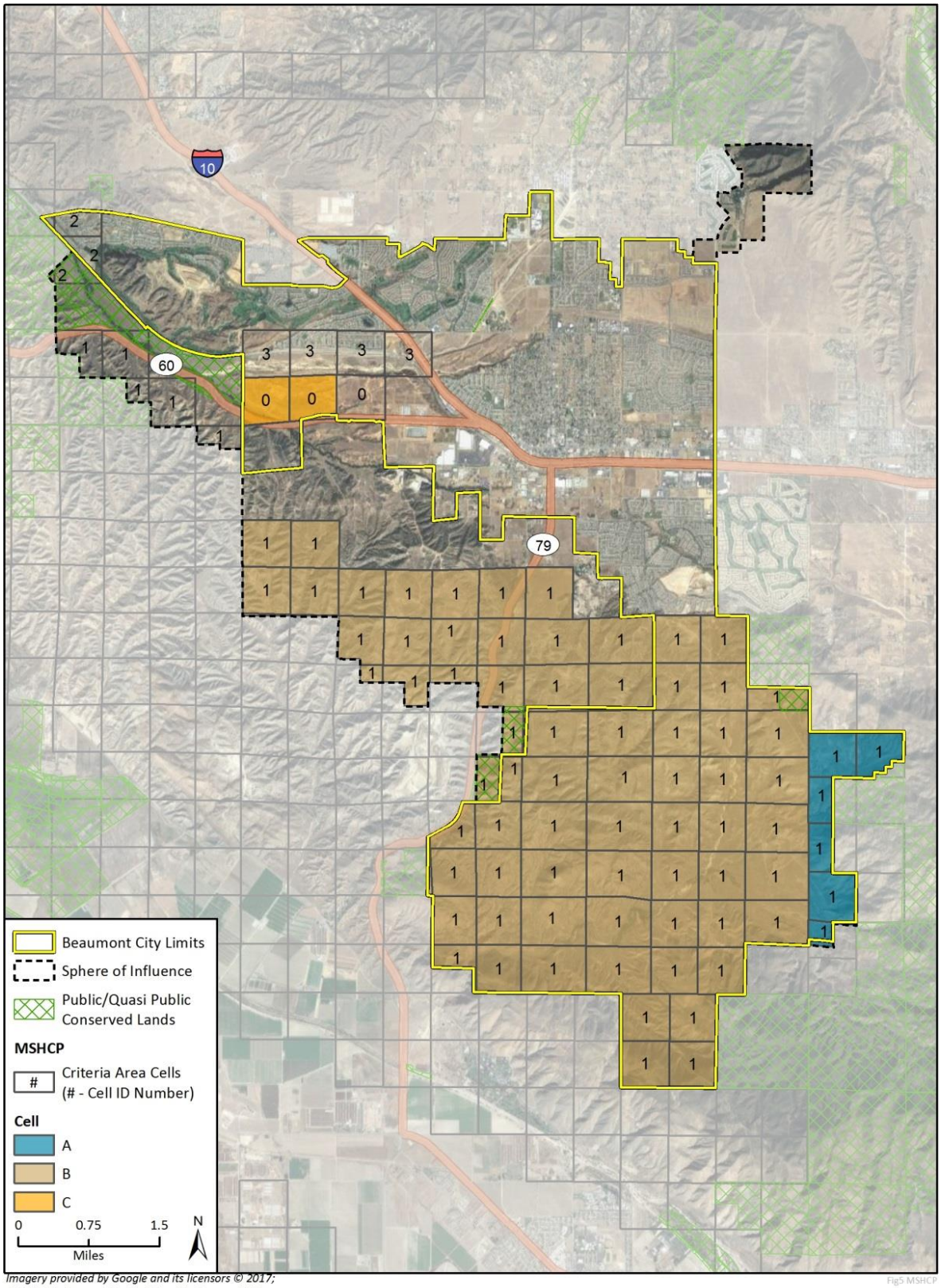
Additional data provided by Riverside County, 2016.

FIGURE 8.3 BEAUMONT IN RELATION TO MSHCP PLANNING AREA



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Additional data provided by Riverside County, 2016.

Fig5 MSHCP

THE PASS AREA PLAN

The Planning Area also occurs wholly within the Riverside County Pass Area Plan, and while the City is not required to adhere to this area plan, areas in the unincorporated Sphere of Influence are. It is therefore important to note that the City' s General Plan Update should consider how The Pass Area Plan relates to the General Plan Update. Specific factors to consider include development adjacent to The Pass Area Plan open space system, its effects on the San Jacinto and Santa Ana watersheds, and impacts to oaks and oak woodlands.

HABITATS/VEGETATION COMMUNITIES

As previously noted, the majority of land cover within the Planning Area is developed. Historically, disturbance of the Planning Area's native vegetation and wildlife has been primarily due to activities associated with cultivation/agriculture. The few undisturbed natural areas that remain in the Planning Area are dominated by chamise chaparral, Riversidean sage scrub, and annual non-native grassland. Small areas of other native plant communities within the Planning Area include southern cottonwood-willow riparian forest, alluvial fan scrub, riparian scrub, and oak woodland. The following paragraphs summarize the major habitats in the Planning Area. Figure 8.4 shows the primary vegetation cover types occurring within the Planning Area. Figure 8.5 shows the locations of important habitats and potential sensitive species within five miles of the Planning Area. The major sensitive ecological areas within the Planning Area are located in the southern portion of the Planning Area.

CHAPARRAL

Chaparral is a vegetation community that is composed of hardy, woody evergreen shrubs that can form a dense, nearly impenetrable scrub. This community is generally found at higher elevations than coastal scrub, and usually on deeper, heavier soils with a moderate moisture content. Chaparral is a fire-adapted community, which means the plant species that form the community have evolved mechanisms for coping with fire and heat.

RIVERSIDEAN SAGE SCRUB

Riversidean sage scrub is a xeric vegetation community that consists of lower elevation plants, generally occurring on dry slopes lower in elevation than chaparral. It is composed of predominantly low growing, aromatic, and generally soft-leaved deciduous shrubs that are not as stiff branched as chaparral plants tend to be.

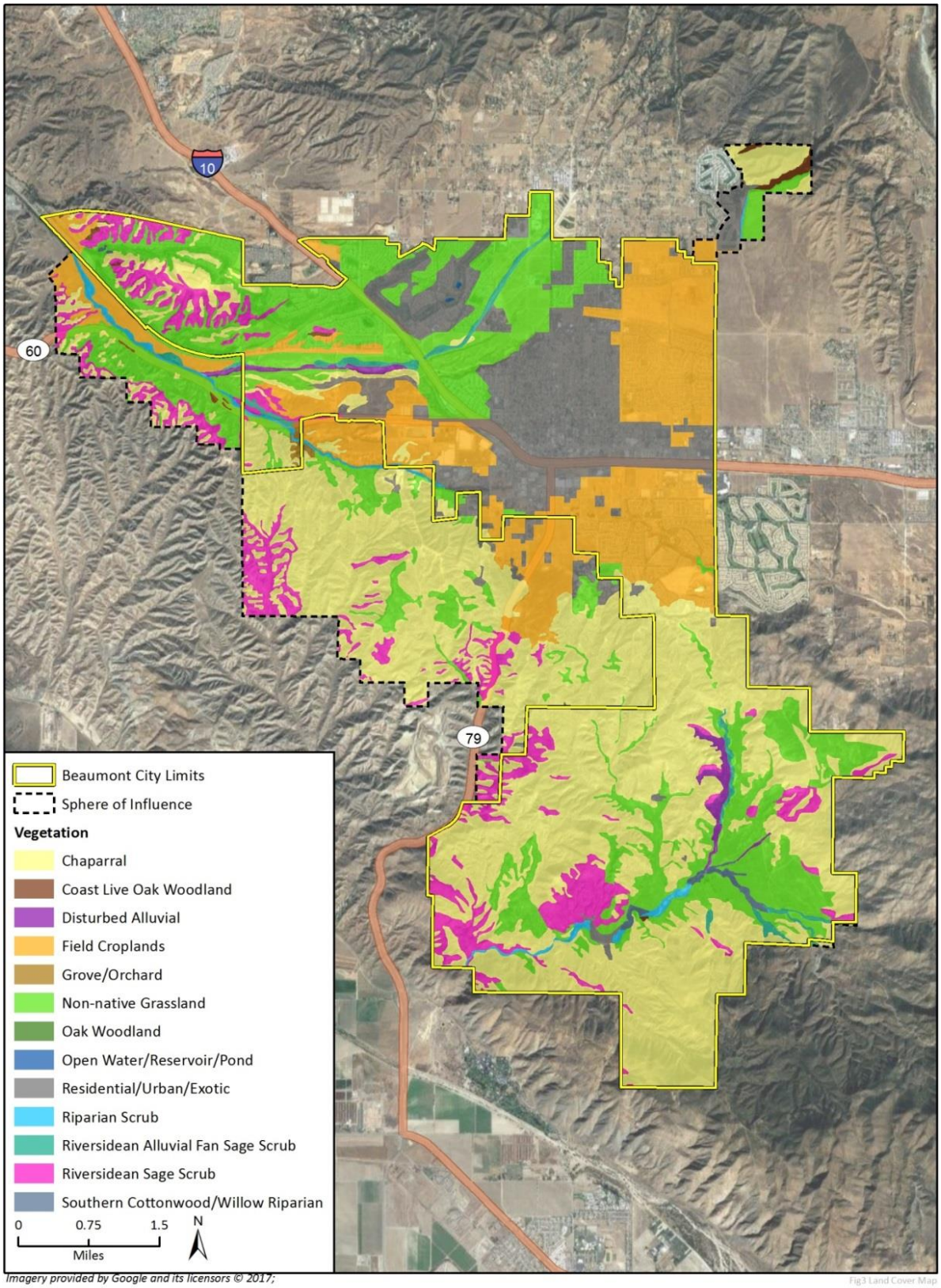
ALLUVIAL FAN SAGE SCRUB

Alluvial fan sage scrub is a vegetation community that occupies coarse alluvial soils of washes and gently sloping alluvial fans, where it is usually indicated by the presence of scalebroom (*Lepidosartum squamatum*) or by a mixture of species typical of Riversidean sage scrub, such as California buckwheat or white sage, together with evergreen species that are more typical of chaparral, such as lemonade berry, sugar bush, hollyleaf cherry, redberry buckthorn, birchleaf mountain mahogany, chaparral yucca, and California juniper.

NON-NATIVE GRASSLANDS

Non-native grassland is a vegetation community that is composed primarily of annual herbs and forbs, and typically lacks a shrub or tree cover. Common grass species include wild oats, soft chess brome, cheat grass, ripgut brome, and red brome. Common forb species include such as filarees, bur clover, and short-podded mustard.

FIGURE 8.4 VEGETATION AND LAND COVER TYPES WITHIN BEAUMONT AS MAPPED BY RCLIS



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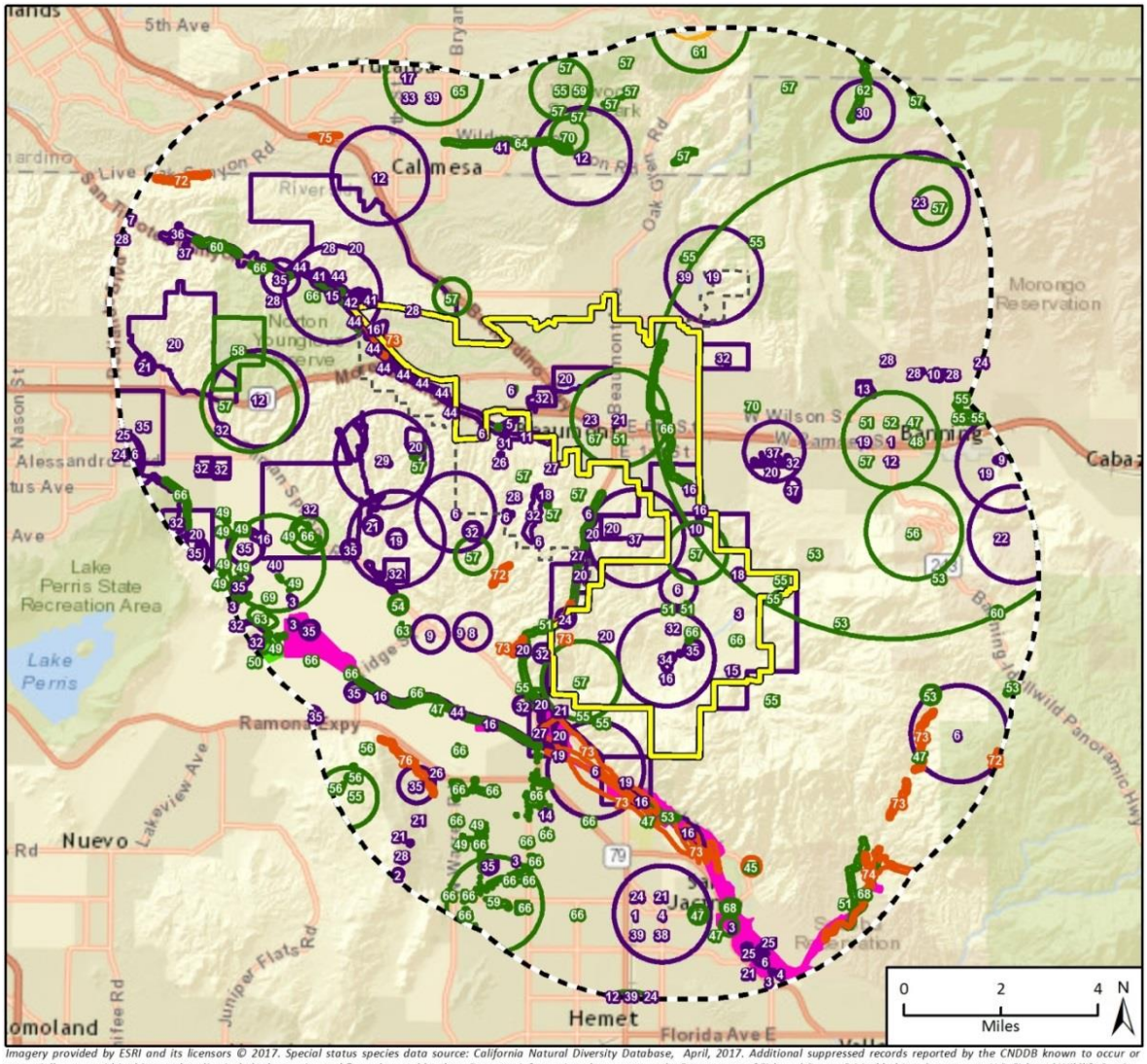
Additional data provided by Riverside County, 2016.

Fig3 Land Cover Map

FIGURE 8.5 BIOLOGICAL RESOURCES WITHIN 5 MILES OF BEAUMONT AS MAPPED BY CNDDB



Imagery provided by ESRI and its licensors © 2017. Special status species data source: California Natural Diversity Database, April, 2017. Additional suppressed records reported by the CNDDB known to occur or potentially occur within this search radius include: burrowing owl & southern rubber boa. For more information please contact the Department of Fish and Game. Critical habitat data source: U.S. Fish and Wildlife Service, December, 2016. Final critical habitat acquired via the USFWS Critical Habitat Portal. It is only a general representation of the data and does not include all designated critical habitat. Contact USFWS for more specific data.

- Beaumont City
- Sphere of Influence
- 5-Mile
- Natural

Final Critical

- San Bernardino Merriam's kangaroo rat
- Southwestern willow flycatcher
- Spreading

1 - American badger
2 - Bell's sage sparrow
3 - burrowing owl
4 - California glossy snake
5 - California horned lark
6 - coast horned lizard
7 - coast patch-nosed snake
8 - coastal cactus wren
9 - coastal California gnatcatcher
10 - coastal whiptail
11 - Cooper's hawk
12 - Crotch bumble bee
13 - Dulzura pocket mouse
14 - ferruginous hawk
15 - golden eagle
16 - least Bell's vireo
17 - lesser long-nosed bat
18 - loggerhead shrike
19 - Los Angeles pocket mouse
20 - northwestern San Diego pocket mouse
21 - orange-throated whiptail
22 - pallid San Diego pocket mouse
23 - purple martin
24 - red-diamond rattlesnake
25 - San Bernardino kangaroo rat
26 - San Diego black-tailed jackrabbit
27 - San Diego desert woodrat
28 - southern California rufous-crowned sparrow
29 - southern grasshopper mouse
30 - southern mountain yellow-legged frog
31 - southwestern willow flycatcher
32 - Stephens' kangaroo rat
33 - Swainson's hawk
34 - Townsend's big-eared bat
35 - tricolored blackbird
36 - western pond turtle
37 - western spadefoot
38 - western yellow-billed cuckoo
39 - western yellow bat
40 - white-faced ibis
41 - white-tailed kite
42 - yellow-breasted chat
43 - yellow-headed blackbird
44 - yellow warbler
45 - California satintail
46 - California screw moss
47 - chaparral sand-verbena
48 - Coachella Valley milk-vetch
49 - Coulter's goldfields
50 - Davidson's saltscale
51 - Jaeger's milk-vetch
52 - mesa horkelia
53 - Mojave tarplant
54 - mud nama
55 - Parry's spineflower
56 - Payson's jewelflower
57 - Plummer's mariposa-lily
58 - Robinson's pepper-grass
59 - Salt Spring checkerbloom
60 - San Bernardino aster
61 - San Bernardino gilia
62 - San Bernardino grass-of-Parnassus
63 - San Jacinto Valley crownscale
64 - Santa Ana River woollystar
65 - slender-horned spineflower
66 - smooth tarplant
67 - spiny-hair blazing star
68 - white rabbit-tobacco
69 - Wright's trichocoronis
70 - Yucaipa onion
71 - Desert Fan Palm Oasis Woodland
72 - Southern Coast Live Oak Riparian Forest
73 - Southern Cottonwood Willow Riparian Forest
74 - Southern Mixed Riparian Forest
75 - Southern Riparian Forest
76 - Southern Riparian Scrub

RIPARIAN SCRUB

Riparian scrub is a vegetation community that takes a variety of forms, depending on the dominant species. This habitat type has the same potential species composition as a riparian forest, but at a younger successional stage, usually a result of either a more recent disturbance or frequent flooding (Faber and Keller 1985). Riparian scrub is typically found along major drainages, but also occurs in smaller water courses.

SOUTHERN COTTONWOOD-WILLOW RIPARIAN FOREST

Southern cottonwood-willow riparian forest is a tall, open broad-leafed, winter-deciduous forest dominated by Fremont cottonwood (*Populus fremonii*), willows (*Salix* spp.), and western sycamore (*Platanus racemosa*), with an understory usually composed of shrubby willows. The tall riparian trees and dense understory result in an almost full canopy cover. This community occurs at low elevations along the valley floor, typically where the water table is high and/or there is year-round water flow. Frequent winter flows provide areas of scour and sedimentation within the channel.

COAST LIVE OAK WOODLANDS

Coast live oak woodland is a plant community dominated by a single oaks species, coast live oak (*Quercus agrifolia*); however, it may be interspersed with other broadleaf and coniferous trees, including California bay (*Umbellularia californica*), California walnut (*Juglans californica*), and to a lesser extent, other oaks. Typical understory consists of grasses, herbs, and geophytes. Coast live oak woodland is found throughout the California chaparral and woodlands ecoregion of California in the United States and northwestern Baja California in Mexico and is widespread at lower elevations in coastal California, occurring in interior valleys of the Coast Ranges, Transverse Ranges and Peninsular Ranges.

DEVELOPED LANDS

Developed lands are characterized by areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Typically, developed lands consist of permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. For the purpose of this summary report, agricultural areas and disturbed lands are also considered developed lands. Agriculture refers to lands subject to routine and ongoing commercial operations associated with orchards and vineyards, intensively developed agriculture, such as dairies, nurseries, and ranches, and extensive agriculture such as fields, pastures, and row crops. Disturbed land includes areas in which there is sparse vegetative cover and where there is evidence of soil surface disturbance and compaction from previous human activity and/or the presence of building foundations and debris. Vegetation on disturbed land (if present) has a high predominance of non-native and/or weedy species that are indicators of surface disturbance and soil compaction, such as Russian thistle (Salsola tragus), telegraph weed (Heterotheca grandiflora), horehound (Marrubium vulgare), and sow-thistle (Sonchus oleraceus).

SPECIAL-STATUS BIOLOGICAL RESOURCES

The following is a summary of special-status biological resources with potential to occur within the Planning Area. The term special-status biological resources include those plants, animals, vegetation communities, jurisdictional drainages and other sensitive biological resources that are governed under federal, state, and/or local laws and regulations. For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and National Marine Fisheries Service (NMFS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as Rare, Threatened, or Endangered by the CDFW under the California Endangered Species Act (CESA) or Native Plant Protection Act;

those recognized as Species of Special Concern (SSC) by the CDFW; and plants occurring on lists 1 and 2 of the CNPS California Rare Plant Rank (CRPR) system.

Plant communities are also considered special-status biological resources if they have limited distributions, have high value for sensitive wildlife, contain special-status species, or are particularly susceptible to disturbance. The CDFW ranks special-status communities as “threatened“ or “very threatened“ and keeps records of their occurrences in the CNDDB.

A total of 22 special-status plant species that are known to occur within the 5-mile radius of the Planning Area, five of which have a state and/or federal listing status, are presented in Technical Appendix B. The general locations of special-status species documented within the Planning Area by the CNDDB (March 2017) are shown in Figure 8.5. Five special-status plants have been mapped within Planning Area limits, including Jaeger's milk-vetch (*Astragalus pachypus* var. *jaegeri*), smooth tarplant (*Centromadia pungens* ssp. *laevis*), spiny-hair blazing star (*Mentzelia tricuspis*), and Parry's spineflower (*Chorizanthe parryi* var. *parryi*).

Several special-status invertebrate, amphibian, fish, reptile, bird, and mammal species that are known or possibly found in the Planning Area. Numerous habitats occur within the Planning Area that can support special-status wildlife species including, but not limited to, Stephen’s kangaroo rat (*Dipodomys stephensi*), San Bernardino Merriam’s kangaroo rat (*D. merriami parvus*), least Bell’s vireo, and western burrowing owl.

SPECIAL-STATUS VEGETATION COMMUNITIES

Special-status vegetation communities are areas that are considered sensitive by federal, state, and/or local agencies due to their rarity and/or value in providing habitat for vegetation, fish, and wildlife. The CDFW classifies southern cottonwood-willow riparian forest, Riversidean alluvial fan scrub, and Riversidean sage scrub as a high priority for inventory (e.g., rare and worthy of consideration). Other special-status communities/areas not defined above, but are present within the Planning Area include drainages, wetlands and associated riparian vegetation.

JURISDICTIONAL RESOURCES

The major water courses associated with the Planning Area are Noble Creek, Little San Gorgonio Creek, and Potrero Creek. Noble Creek and Little San Gorgonio Creek are tributaries of San Timoteo Creek, which drains to the Santa Ana River and eventually to the Pacific Ocean. Potrero Creek is a tributary to the San Jacinto River, which drains into Lake Elsinore. Lake Elsinore has very little outflow, but in years of heavy rainfall it has overflowed into Temescal Creek, a tributary of the Santa Ana River. Any drainages occurring within the Planning Area that have a nexus to Noble Creek, Little San Gorgonio Creek, or Potrero Creek may be considered jurisdictional waters by federal and state regulations.

WILDLIFE CORRIDORS AND PRESERVES

As previously noted, the Planning Area occurs within the regional setting of the Western Riverside MSHCP. The MSHCP is comprised of a variety of existing and proposed Cores and Linkages. As defined by the MSHCP, a Core is a block of habitat of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more MSHCP Covered Species. Linkages are connections between Cores that are of adequate size, configuration and vegetation characteristics to generally provide for "Live-In" habitat and/or provide for genetic flow for identified planning species. Areas identified as Linkages in the MSHCP may also provide movement habitat but not live-in habitat for some species, thereby functioning more as movement corridors.

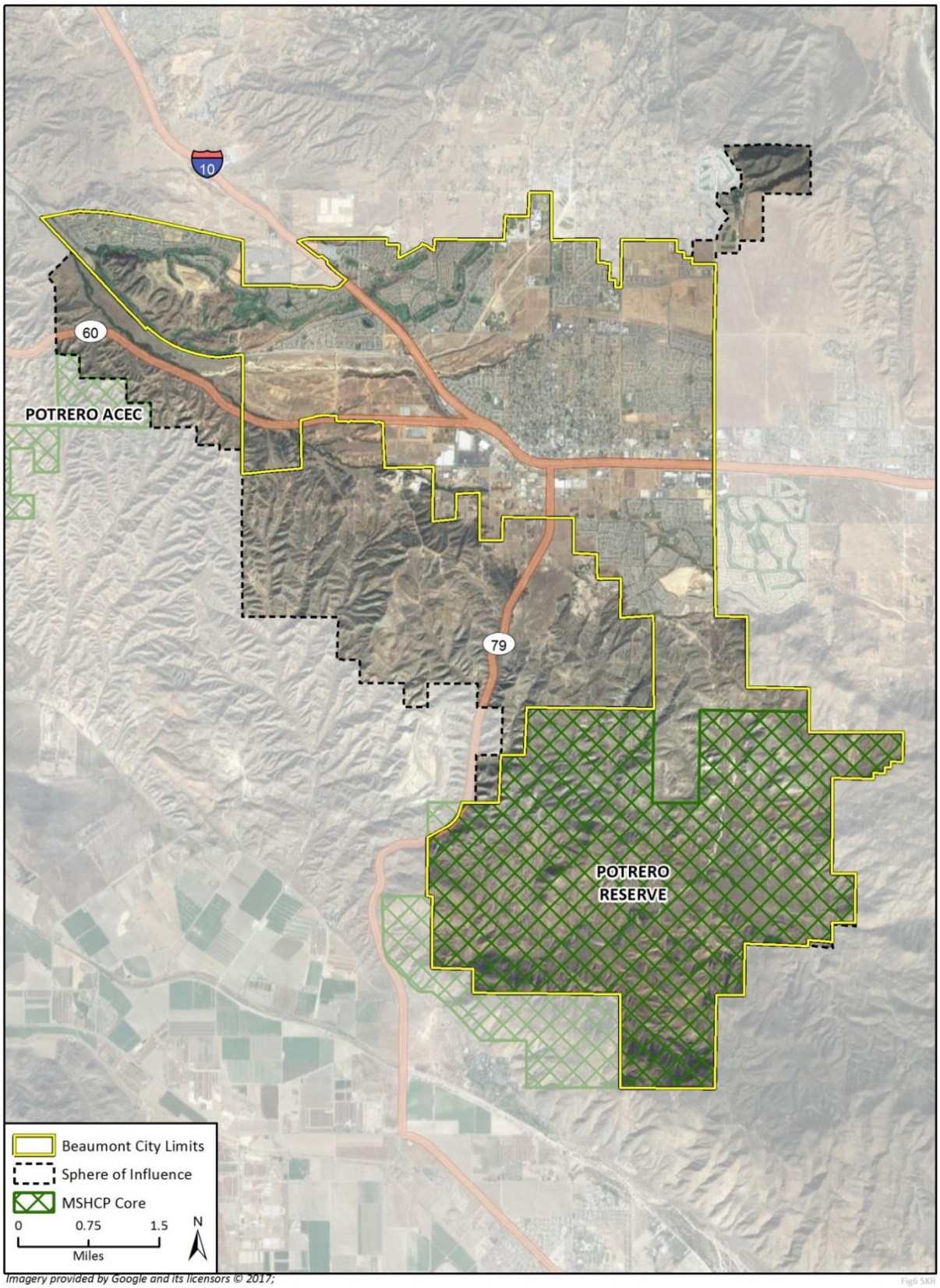
Within the Planning Area, the MSHCP has identified several Cores and Linkages, including Core 3 (Potrero Reserve) located in the southern portion of the Planning Area (Figure 8.6). Core 3 consists mainly of private lands, but also contains a few Public/Quasi-Public parcels. The Core also functions as a Linkage, connecting the San Bernardino

National Forest to the southwest with San Bernardino County and other conserved areas to the north of the Core. With a total acreage of approximately 24,920 acres, the Badlands/Potrero Core is one of the largest MSHCP Core. In addition, the Core is contiguous with other large Cores (Lake Perris/Mystic Lake and San Jacinto Mountains), thus greatly enlarging the functional area of Core 3.

Core 3 has a large proportion of its area unaffected by an urbanized edge and is only partially constrained by existing agricultural use. Within Core 3, important live-In and movement habitat is provided for Bell's sage sparrow (*Artemisiospiza belli*), loggerhead shrike (*Lanius ludovicianus*), cactus wren (*Campylorhynchus brunneicapillus*), southern California rufous-crowned sparrow (*Aimophila ruficeps*), and mountain lion (*Puma concolor*), which have key populations in the Badlands. Potrero Creek and associated alluvial fan sage scrub within the Core also provides habitat for key MSHCP species such as the Stephens' kangaroo rat, Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) and arroyo toad (*Anaxyrus californicus*).

In summary, some areas within the Planning Area have the potential or are known to support protected sensitive biological resources, including, but not limited to, state and federally listed wildlife and plant species; protected wetlands and waters; and wildlife movement corridors and preserves. As such, development and infrastructure projects could result in the loss of these resources within the Planning Area. Therefore, it is recommended that the intent of updates to the Conservation Element of the General Plan should include the addition and/or strengthening of policies for specific avoidance and mitigation measures to sensitive biological resources.

FIGURE 8.6 BEAUMONT MSHCP CORES AND LINKAGES



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Additional data provided by Riverside County, 2016.

AIR QUALITY

Beaumont is located in the northeastern portion of the South Coast Air Basin (SCAB, Basin). The Basin is bounded by the San Gabriel, San Bernardino, and San Jacinto Mountain ranges, and includes an area that extends from Calimesa on the northwest to Indio on the southeast. The principal source of air pollution affecting Beaumont, and the Banning Pass area, are pollutants transported by wind from the greater Los Angeles Metropolitan area. Air quality is an increasing concern for residents in Beaumont, as the major transportation routes through the City introduce air emissions from trucks, cars and trains. Additionally, in recent years the City has seen proposal for large-scale logistics facilities which attract more cars and diesel trucks. The resultant air quality emissions from these land uses are something that communities across the Inland Empire and Southern California are challenged with.

Air Quality Index Level of Health Concern	Numerical Value
Good	0 – 50
Moderate	51 – 100
Unhealthy for Sensitive Group	101 – 150
Unhealthy	151 – 200
Very Unhealthy	201 – 300
Hazardous	> 300

South Coast Air Quality Management District Air Quality Index Standards

The South Coast Air Quality Management District (SCAQMD) operates 38 permanent monitoring stations in the SCAB and a portion of the Salton Sea Air Basin in Coachella Valley. These monitoring stations are utilized by SCAQMD to provide a daily Air Quality Index for communities within their district boundaries. The Banning Pass Air Quality Monitoring Station is located within the vicinity of the City and started monitoring for ozone, nitrogen dioxide and course (PM10) and fine (PM2.5) particulate matter in 1997. The City of Beaumont lies within a state non-attainment area PM10 and a state and federal non-attainment area for ozone. This means Beaumont is considered to have air quality worse for these pollutants exceeding the ambient air standards set by the State and Federal governments. In light of this, current air quality conditions within the City of Beaumont are considered good with an air quality index of 46.[25]

In the California Air Resources Board (CARB) Multiple Air Toxics Exposure Studies (MATES), risk maps provide information on various Toxic Air Contaminants (TACs) in terms of their relative health risks, as well as their spatial distribution across the Basin. The most recent information can be used to characterize the "background" health risks from both regional and local TAC emission sources based on the available toxics emission inventory for the year 2012. Individuals residing and working within the City of Beaumont are exposed to inhalation cancer risks of no greater than approximately 602 persons per million.[26] It is important to note that the risk maps depict theoretical inhalation cancer risk due to modeled outdoor toxic pollutant levels and do not account for cancer risk due to other types of exposure. The largest contributors to inhalation cancer risk are diesel engines and the MATES program results indicate that diesel particulate matter (DPM) contributes approximately 68% of the total cancer risk. The highest cancer risks within the City are generally adjacent to Interstate 10, where truck traffic and DPM concentrations would likely be highest.

There are several industrial developments within the City that may be significant sources of TACs, which are listed in the SCAQMD Facility Information Detail (FIND) web tool. Example facilities include, but are not limited to,

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[25] South Coast Air Quality Management District, Beaumont Air Quality Index for March 29, 2017. Available at http://www.aqmd.gov/ accessed March 29, 2017.

[26] SCAQMD, *MATES-IV Carcinogenic Risk Map*. (Available at http://www3.aqmd.gov/webappl/OI.Web/OI.aspx?jurisdictionID=AQMD.gov&shareID=73f55d6b-82cc-4c41-b779-4c48c9a8b15b, accessed March 1, 2017.

several concrete operations, a steel fabrication plant, plastic manufacturer, and plating, stamping, and tooling manufacturing facility. Locations of TAC emitter facilities are shown on Figure 8.7, and include the following:

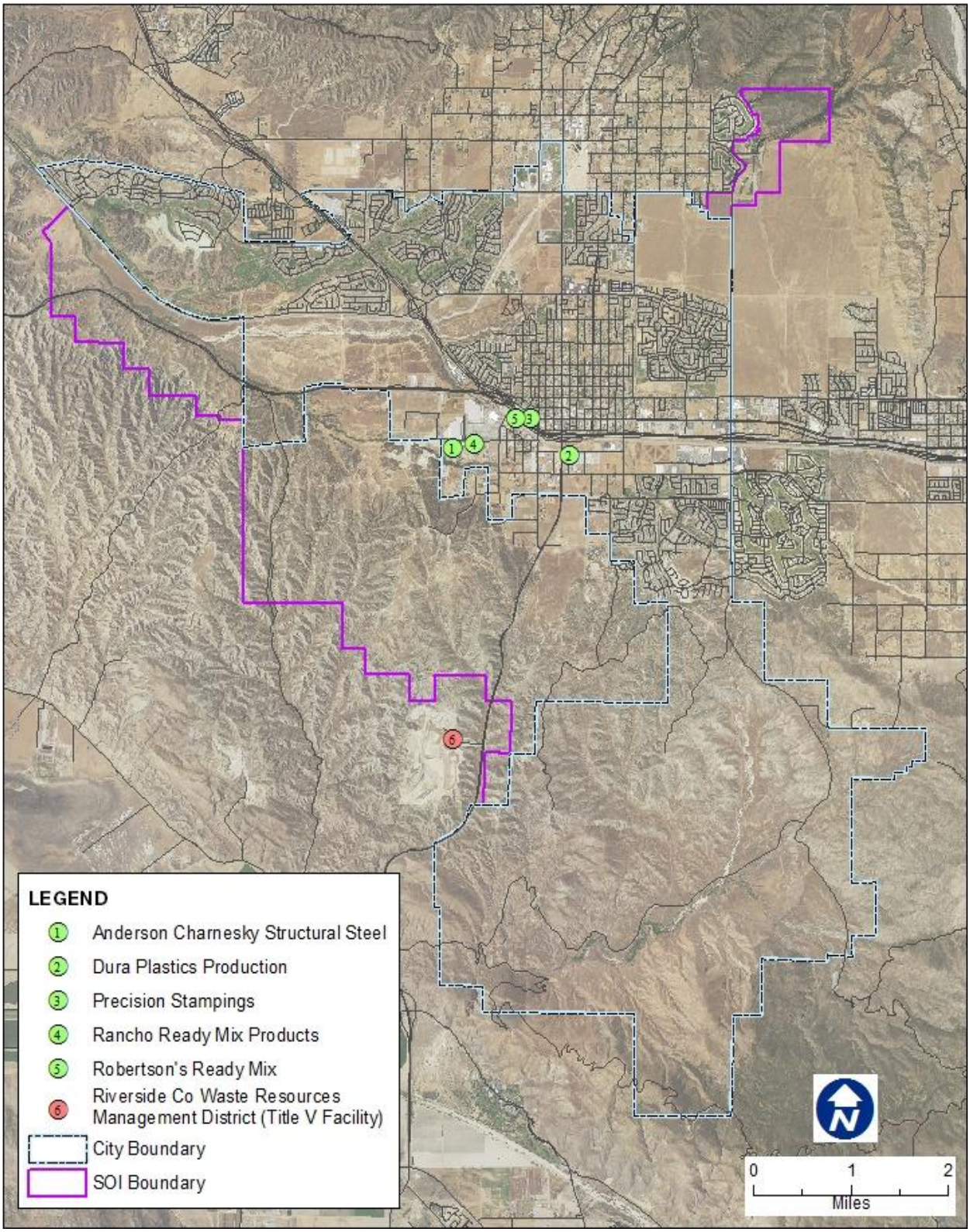
- Anderson Charnesky Structural Steel, Inc.
- Dura Plastic Production, Inc.
- Precision Stampings, Inc.
- Rancho Ready Mix Products, LP
- Robertson's Ready Mix – Beaumont #7

Additionally, the US Environmental Protection Agency oversees Title V to standardize air quality permits and the permitting process for major sources of emissions across the country. There is one registered Title V facility within the City, the Lamb Canyon Landfill located at 16411 Lamb Canyon Road. Annual emissions from this facility for the year 2016 include 5 criteria pollutants and 18 toxic pollutants.

CARB recommends avoidance of siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day or rural roads with 50,000 vehicles per day. Additional recommendations for sensitive land uses include avoidance of placing such uses within 300 feet of any dry-cleaning operation using perchloroethylene. For such operations with two or more machines, setback should be increased to 500 feet. Consultation with the local air quality district should be made for operations utilizing three or more machines. No sensitive uses should be placed within the same building of such operations. CARB further recommends new sensitive land uses should not be placed within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater) and that a 50-foot setback is recommended for all other typical gas station facilities from sensitive land uses. [27]

[27] California Air Resource Board, *Air Quality and Land Use Handbook: A Community Health Perspective, Table 1-2: Summary of Basis for Advisory Recommendations,* dated April 2005. (Available at https://www.arb.ca.gov/ch/handbook.pdf, accessed March 29, 2017.)

FIGURE 8.7 LARGE POLLUTERS MAP



ENERGY AND GREENHOUSE GAS EMISSIONS

Climate change, driven by human-generated greenhouse gas emissions is one of the most urgent environmental issues of our time. The effects of climate change have the potential to increase the severity of hazards and number of facilities susceptible to damage. New natural hazard event threats, such as extreme heat or precipitation events that have not been previously considered in emergency operations planning in Beaumont may occur. The resiliency of the city's population, infrastructure and economy are important considerations. While these effects may see long-term planning incrementally adapt land use patterns, infrastructure and the built environment may provide the most options and the most efficient course of action. Moreover, reducing GHG-generating activities has valuable co-benefits, such as cost-savings from reduced energy consumption and health benefits from improved air quality and more active transportation.

ENERGY

Building energy consumption is typically the second leading producer of greenhouse gas emissions for cities. The tables below show the breakdown of energy consumption by residential and non-residential and electricity and natural gas.

TABLE 8.1 ELECTRICITY CONSUMPTION FOR BEAUMONT AND RIVERSIDE COUNTY, 2012

	Countywide (kWh)	County Per Capita (kWh)	Beaumont (kWh)	Beaumont Per Capita (kWh)
Non-Residential	8,576,253,077	3,781	85,868,511	2,178
Residential	6,672,257,901	2,942	98,608,434	2,501
Total	15,248,510,978	6,723	184,476,945	4,680

Source: California Energy Commission

TABLE 8.2 NATURAL GAS CONSUMPTION FOR BEAUMONT AND RIVERSIDE COUNTY, 2012

	Countywide (Therms)	County Per Capita (Therms)	Beaumont (Therms)	Beaumont Per Capita (Therms)
Non-Residential	125,596,694	55	8,919,051	226
Residential	242,957,288	107	4,615,641	117
Total	368,553,982	163	13,534,692	343

Source: California Energy Commission

In 2012, a total of 4,680 kWh of electricity per capita was consumed, significantly lower than the countywide average of 6,723 kWh. Beaumont's lower per capita electricity consumption may be largely attributed to its lower non-residential (commercial/industrial) consumption. For natural gas consumption, it was the opposite effect: in Beaumont 50% per more natural per capita is consumed than the countywide per capita average. Again, the difference in consumption may be attributed to the non-residential sector. In Beaumont, non-residential natural gas consumption is 4 times greater than for Riverside County. It appears that industrial and commercial use in Beaumont have a greater reliance on natural gas energy than electricity.

GREENHOUSE GASES

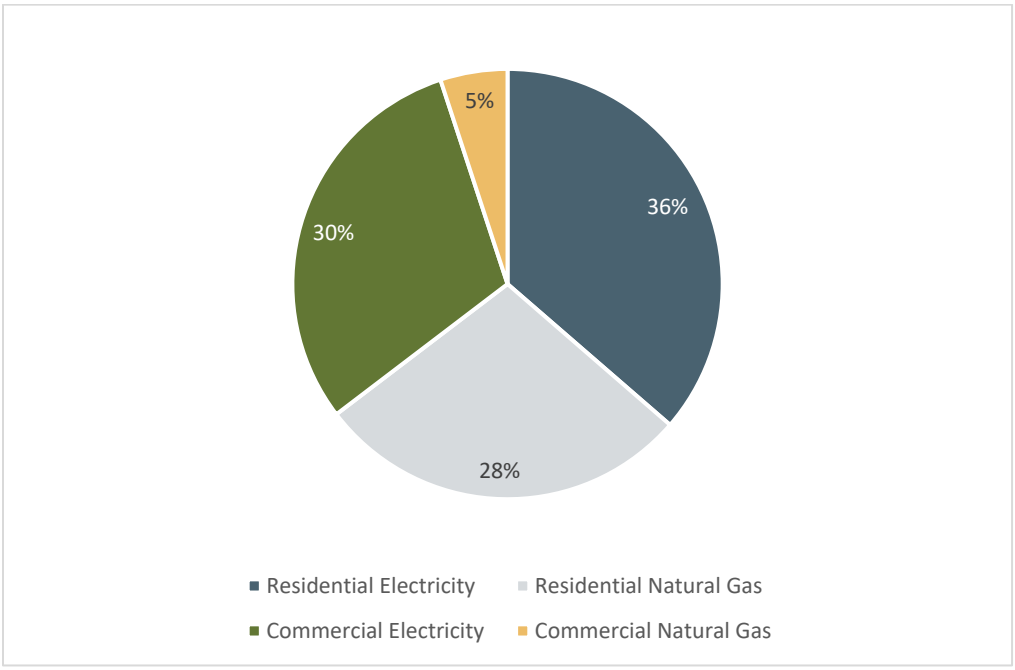
In 2015, Beaumont conducted a greenhouse gas emissions inventory as part of its Climate Action Plan (CAP). The Beaumont CAP focused exclusively on the building energy sector, and did not include transportation, waste or other GHG sources. Transportation is typically the main source of GHG emissions for cities. For Western Riverside County, emissions from the transportation sector accounted for 3,317,387 $MTCO_{2e}$, or 57% of the total emissions in the subregion or 1.5 metric tons of carbon per person.

Approximately two-thirds (67%) of Beaumont's emissions originated from electricity consumption, and the rest (33%) originated from natural gas consumption. Overall, residential sources accounted for 64% of total GHG, outpacing GHG commercial sources (36%).

TABLE 8.3 GHG EMISSIONS BY SECTOR

Building Energy Sectors		
Sub-sector and Source	**GHG Emissions (MTCO2e)**	**% of Total Emissions**
Residential		
Electricity	31,555	36%
Natural Gas	24,535	28%
Commercial/Industrial		
Electricity	27,479	31%
Natural Gas	4,741	5%
Total	**88,310**	**100%**

FIGURE 8.8 DISTRIBUTION OF GHG EMISSIONS



This Beaumont CAP GHG inventory served as a baseline for projecting future emissions. It is estimated that GHG emissions from Beaumont's building energy sector will increase by approximately 46%, from 88,310 $MTCO_{2e}$ to 129,137 $MTCO_{2e}$ by 2020. These increases are driven largely by population growth and a subsequent increase in the housing stock in the City.

The Beaumont CAP recommends a target reduction of 28% of its 2012 baseline level by 2020, which translates to a GHG emissions level of 63,583 MTCO2e/year. This target is not officially adopted by the City of Beaumont. The CAP also provides GHG-reduction strategies for existing residential buildings and privately-owned commercial and industrial buildings as well as an implementation plan and timeline for achieving these reductions. Opportunities for further reducing Beaumont's carbon emissions could be achieved through additional reduction strategies targeting emissions from waste and transportation.

SOLID WASTE AND RECYCLING

Solid waste disposal services for residential and commercial uses in Beaumont are provided by the commercial vendor, Waste Management. Solid waste collected from Beaumont residents and businesses is hauled to one of a few Riverside County landfills, including the El Sobrante and Lamb Canyon Landfills. The City manages several recycling programs for pharmaceutical items, batteries, as well as bulky items. Free household hazardous waste disposal is provided by the County of Riverside at Lamb Canyon Landfill on Saturdays.

REFERENCES

American Ornithologists' Union (AOU) and Cooper Ornithological Society. 2017. *Check-list of North American Birds*. Retrieved from http://www.aou.org/checklist/north (February 10, 2017).

Baldwin B. G., Goldman, D. H., Keil D. J., Patterson R., Rosatti T. J. (editors). 2012. *The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded.* University of California Press. Berkeley, California.

Bowers, N., R. Bowers, & K. Kaufman. 2004. *Mammals of North America.*

Burt, W.H., and R.P. Grossenheider. 1980. *A Field Guide to the Mammals of North American North of Mexico.* The Peterson Field Guide Series.

California Department of Fish and Wildlife. 2017a. California Natural Diversity Database, RareFind 5 (V 5.2.7) (February 2017).

California Department of Fish and Wildlife. 2017b. Biogeographic Information and Observation System (BIOS) (V 5.49.25). Retrieved from http://bios.dfg.ca.gov (February 2017).

California Department of Fish and Wildlife. 2017c. *Special Animals List.* Biogeographic Data Branch, California Natural Diversity Database. Updated January 2017.

California Department of Fish and Wildlife. 2017d. Sp*ecial Vascular Plants, Bryophytes, and Lichens List.* Biogeographic Data Branch, California Natural Diversity Database. Updated January 2017.

California Native Plant Society (CNPS), Rare Plant Program. 2017. *Inventory of Rare and Endangered Plants* (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org (February 2017).

City of Beaumont. 2007. *General Plan.* Accessed via: http://www.ci.beaumont.ca.us/index.aspx?NID=121

City of Beaumont. (2007). City of Beaumont General Plan.

City of Beaumont. (2015). Title 9: Public Peace, Morals, and Welfare. Retrieved April 2017, from City of Beaumont Municipal Code: http://www.ci.beaumont.ca.us/DocumentCenter/View/894

City of Beaumont. (2016). Ordinance No. 1067. Retrieved April 2017, from City of Beaumont Municipal Code: http://www.ci.beaumont.ca.us/DocumentCenter/View/27455

County of Riverside. 2003. Multiple Species Habitat Conservation Plan. Available at: http://wrc-rca.org/about-rca/multiple-species-habitat-conservation-plan/

County of Riverside. 2017. Riverside County Land Information System. Available at: http://gisweb.interwestgrp.com/RCLIS/

Faber, P.M. and E. Keller. 1985. The Ecology of Riparian Habitats of the Southern California Coastal Region: A Community Profile. USDI Fish and Wildlife Service Biological Report. 152 pp.

Federal Railroad Administration. (2016). US DOT Crossing Inventory Form for Riverside County. Retrieved April 2017, from http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Xingqryloc.aspx

Federal Transit Administration. (2006). Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06). Available at https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/fta-noise-and-vibration-impact-assessment.

Google Earth. 2017. Available at: http://earth.google.com/

Hickman, J.C. (Ed.). 1993. *The Jepson Manual: Higher Plants of California.* University of California Press. Berkeley, California.

Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.

ICF Jones & Stokes. 2009. Technical Noise Supplement. November. (ICF J&S 00183.08) Sacramento, CA. Prepared for California Department of Transportation, Sacramento, CA.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition.* California Native Plant Society, Sacramento.

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

Stebbins, Robert C. 2003. *Western Reptiles and Amphibians, Third Edition. Peterson* Field Guides. Houghton Mifflin Company, 514 pages.

United States Department of Agricultural, Natural Resources Conservation Service. 2016a. Web Soil Survey. Retrieved from http://websoilsurvey.nrcs.usda.gov/app (February 15, 2017).

United States Fish and Wildlife Service. 1973. *The Endangered Species Act of 1973,* as amended (16 U.S.C. 1531 et seq.).

United States Fish and Wildlife Service. 2017a. Critical Habitat Portal. Retrieved from http://criticalhabitat.fws.gov (February 17, 2017).

United States Fish and Wildlife Service. 2017b. Information Planning and Conservation System (IPAC) Retrieved from: http://ecos.fws.gov/ipac/gettingStarted/index

United States Fish and Wildlife Service. 2017c. *National Wetlands Inventory.* Retrieved from http://wetlands.fws.gov (February 16, 2017).

Wilson, D.E. and Reeder, D.M. 2005. *Mammal Species of the World.* A Taxonomic and Geographic Reference (3rd edition), Johns Hopkins University Press, 2,142 pp. Retrieved from http://www.departments.bucknell.edu/biology/resources/msw3/browse.asp (February 17, 2017).

TECHNICAL APPENDIX A

TECHNICAL APPENDIX B

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/20/2020 12:29 PM

Beaumont GP - 2040 City Non VMT - Riverside-South Coast County, Summer

Beaumont GP - 2040 City Non VMT

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	884.20	1000sqft	20.30	884,196.00	0
General Light Industry	11,502.30	1000sqft	264.06	11,502,295.00	0
Apartments Low Rise	7,941.00	Dwelling Unit	496.31	7,941,000.00	22711
Single Family Housing	23,081.00	Dwelling Unit	7,493.83	41,545,800.00	66012
Regional Shopping Center	7,103.43	1000sqft	163.07	7,103,425.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per City only General Plan Land Use Summary. Based on Max Residential density and Typical non-residential intensity.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Not Modelled. VMT modelled seperatley.

Woodstoves - Assumed no wood burning fireplaces in apartments.

Fleet Mix - Not Modeled

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10,000.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	794.10	1,191.15
tblFireplaces	NumberWood	397.05	0.00
tblLandUse	LandUseSquareFeet	884,200.00	884,196.00
tblLandUse	LandUseSquareFeet	11,502,300.00	11,502,295.00
tblLandUse	LandUseSquareFeet	7,103,430.00	7,103,425.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Energy	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**7,888.0612**	**967.0080**	**16,459.7032**	**39.1147**	**0.0000**	**2,128.8384**	**2,128.8384**	**0.0000**	**2,128.8384**	**2,128.8384**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Energy	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**7,888.0612**	**967.0080**	**16,459.7032**	**39.1147**	**0.0000**	**2,128.8384**	**2,128.8384**	**0.0000**	**2,128.8384**	**2,128.8384**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/17/2020	1/16/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Light Industry	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Office Building	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Regional Shopping Center	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Single Family Housing	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
NaturalGas Unmitigated	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	338841	3.6542	31.2266	13.2879	0.1993		2.5247	2.5247		2.5247	2.5247						
General Light Industry	1.02386e+006	11.0417	100.3786	84.3180	0.6023		7.6288	7.6288		7.6288	7.6288						
General Office Building	8405.92	0.0907	0.8241	0.6923	4.9400e-003		0.0626	0.0626		0.0626	0.0626						
Regional Shopping Center	43204.4	0.4659	4.2357	3.5580	0.0254		0.3219	0.3219		0.3219	0.3219						
Single Family Housing	1.93477e+006	20.8651	178.3020	75.8732	1.1381		14.4159	14.4159		14.4159	14.4159						
Total		**36.1175**	**314.9670**	**177.7294**	**1.9700**		**24.9539**	**24.9539**		**24.9539**	**24.9539**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	338.841	3.6542	31.2266	13.2879	0.1993		2.5247	2.5247		2.5247	2.5247						
General Light Industry	1023.86	11.0417	100.3786	84.3180	0.6023		7.6288	7.6288		7.6288	7.6288						
General Office Building	8.40592	0.0907	0.8241	0.6923	4.9400e-003		0.0626	0.0626		0.0626	0.0626						
Regional Shopping Center	43.2044	0.4659	4.2357	3.5580	0.0254		0.3219	0.3219		0.3219	0.3219						
Single Family Housing	1934.77	20.8651	178.3020	75.8732	1.1381		14.4159	14.4159		14.4159	14.4159						
Total		**36.1175**	**314.9670**	**177.7294**	**1.9700**		**24.9539**	**24.9539**		**24.9539**	**24.9539**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Unmitigated	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	134.3350					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1,365.7390					0.0000	0.0000		0.0000	0.0000						
Hearth	6,275.4768	622.6114	13,731.8854	37.0093		2,089.6845	2,089.6845		2,089.6845	2,089.6845						
Landscaping	76.3928	29.4296	2,550.0884	0.1353		14.2000	14.2000		14.2000	14.2000						
Total	**7,851.9436**	**652.0410**	**16,281.9738**	**37.1446**		**2,103.8845**	**2,103.8845**		**2,103.8845**	**2,103.8845**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	134.3350					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1,365.7390					0.0000	0.0000		0.0000	0.0000						
Hearth	6,275.4768	622.6114	13,731.8854	37.0093		2,089.6845	2,089.6845		2,089.6845	2,089.6845						
Landscaping	76.3928	29.4296	2,550.0884	0.1353		14.2000	14.2000		14.2000	14.2000						
Total	**7,851.9436**	**652.0410**	**16,281.9738**	**37.1446**		**2,103.8845**	**2,103.8845**		**2,103.8845**	**2,103.8845**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/20/2020 12:30 PM

Beaumont GP - 2040 City Non VMT - Riverside-South Coast County, Winter

Beaumont GP - 2040 City Non VMT

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	884.20	1000sqft	20.30	884,196.00	0
General Light Industry	11,502.30	1000sqft	264.06	11,502,295.00	0
Apartments Low Rise	7,941.00	Dwelling Unit	496.31	7,941,000.00	22711
Single Family Housing	23,081.00	Dwelling Unit	7,493.83	41,545,800.00	66012
Regional Shopping Center	7,103.43	1000sqft	163.07	7,103,425.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per City only General Plan Land Use Summary. Based on Max Residential density and Typical non-residential intensity.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Not Modelled. VMT modelled seperatley.

Woodstoves - Assumed no wood burning fireplaces in apartments.

Fleet Mix - Not Modeled

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10,000.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	794.10	1,191.15
tblFireplaces	NumberWood	397.05	0.00
tblLandUse	LandUseSquareFeet	884,200.00	884,196.00
tblLandUse	LandUseSquareFeet	11,502,300.00	11,502,295.00
tblLandUse	LandUseSquareFeet	7,103,430.00	7,103,425.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Energy	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**7,888.0612**	**967.0080**	**16,459.7032**	**39.1147**	**0.0000**	**2,128.8384**	**2,128.8384**	**0.0000**	**2,128.8384**	**2,128.8384**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Energy	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**7,888.0612**	**967.0080**	**16,459.7032**	**39.1147**	**0.0000**	**2,128.8384**	**2,128.8384**	**0.0000**	**2,128.8384**	**2,128.8384**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/17/2020	1/16/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Light Industry	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Office Building	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Regional Shopping Center	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Single Family Housing	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						
NaturalGas Unmitigated	36.1175	314.9670	177.7294	1.9701		24.9539	24.9539		24.9539	24.9539						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	338841	3.6542	31.2266	13.2879	0.1993		2.5247	2.5247		2.5247	2.5247						
General Light Industry	1.02386e+006	11.0417	100.3786	84.3180	0.6023		7.6288	7.6288		7.6288	7.6288						
General Office Building	8405.92	0.0907	0.8241	0.6923	4.9400e-003		0.0626	0.0626		0.0626	0.0626						
Regional Shopping Center	43204.4	0.4659	4.2357	3.5580	0.0254		0.3219	0.3219		0.3219	0.3219						
Single Family Housing	1.93477e+006	20.8651	178.3020	75.8732	1.1381		14.4159	14.4159		14.4159	14.4159						
Total		**36.1175**	**314.9670**	**177.7294**	**1.9700**		**24.9539**	**24.9539**		**24.9539**	**24.9539**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	338.841	3.6542	31.2266	13.2879	0.1993		2.5247	2.5247		2.5247	2.5247						
General Light Industry	1023.86	11.0417	100.3786	84.3180	0.6023		7.6288	7.6288		7.6288	7.6288						
General Office Building	8.40592	0.0907	0.8241	0.6923	4.9400e-003		0.0626	0.0626		0.0626	0.0626						
Regional Shopping Center	43.2044	0.4659	4.2357	3.5580	0.0254		0.3219	0.3219		0.3219	0.3219						
Single Family Housing	1934.77	20.8651	178.3020	75.8732	1.1381		14.4159	14.4159		14.4159	14.4159						
Total		**36.1175**	**314.9670**	**177.7294**	**1.9700**		**24.9539**	**24.9539**		**24.9539**	**24.9539**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						
Unmitigated	7,851.9436	652.0410	16,281.9738	37.1446		2,103.8845	2,103.8845		2,103.8845	2,103.8845						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	134.3350					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1,365.7390					0.0000	0.0000		0.0000	0.0000						
Hearth	6,275.4768	622.6114	13,731.8854	37.0093		2,089.6845	2,089.6845		2,089.6845	2,089.6845						
Landscaping	76.3928	29.4296	2,550.0884	0.1353		14.2000	14.2000		14.2000	14.2000						
Total	**7,851.9436**	**652.0410**	**16,281.9738**	**37.1446**		**2,103.8845**	**2,103.8845**		**2,103.8845**	**2,103.8845**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	134.3350					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1,365.7390					0.0000	0.0000		0.0000	0.0000						
Hearth	6,275.4768	622.6114	13,731.8854	37.0093		2,089.6845	2,089.6845		2,089.6845	2,089.6845						
Landscaping	76.3928	29.4296	2,550.0884	0.1353		14.2000	14.2000		14.2000	14.2000						
Total	**7,851.9436**	**652.0410**	**16,281.9738**	**37.1446**		**2,103.8845**	**2,103.8845**		**2,103.8845**	**2,103.8845**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/20/2020 12:44 PM

Beaumont GP - 2040 SOI Non VMT - Riverside-South Coast County, Summer

Beaumont GP - 2040 SOI Non VMT

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	931.16	1000sqft	21.38	931,157.00	0
General Light Industry	10,258.03	1000sqft	235.49	10,258,032.00	0
Apartments Low Rise	6,136.00	Dwelling Unit	383.50	6,136,000.00	17549
Single Family Housing	3,691.00	Dwelling Unit	1,198.38	6,643,800.00	10556
Regional Shopping Center	2,403.56	1000sqft	55.18	2,403,556.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per SOI only General Plan Land Use Summary. Based on Max. Residental density and Typical non-residential intensity.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Not Modeled.VMT Modelled seperately.

Woodstoves - Assumed no wood burning fireplaces in apartments.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10,000.00	0.00
tblConstructionPhase	PhaseEndDate	5/16/2058	1/16/2020
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	613.60	920.40
tblFireplaces	NumberWood	306.80	0.00
tblLandUse	LandUseSquareFeet	10,258,000.00	10,258,032.00
tblLandUse	LandUseSquareFeet	2,403,560.00	2,403,556.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	1.0200e-003	0.0000	0.0000	9.3000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0200e-003**	**0.0000**	**0.0000**	**9.3000e-004**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	1.0200e-003	0.0000	0.0000	9.3000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0200e-003**	**0.0000**	**0.0000**	**9.3000e-004**	**0.0000**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Energy	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1,762.0406**	**341.4263**	**4,325.9142**	**11.1775**	**0.0000**	**550.0216**	**550.0216**	**0.0000**	**550.0216**	**550.0216**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Energy	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1,762.0406**	**341.4263**	**4,325.9142**	**11.1775**	**0.0000**	**550.0216**	**550.0216**	**0.0000**	**550.0216**	**550.0216**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/17/2020	1/16/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Light Industry	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Office Building	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Regional Shopping Center	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Single Family Housing	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
NaturalGas Unmitigated	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	261822	2.8236	24.1287	10.2675	0.1540		1.9508	1.9508		1.9508	1.9508						
General Light Industry	913105	9.8472	89.5201	75.1969	0.5371		6.8035	6.8035		6.8035	6.8035						
General Office Building	8852.37	0.0955	0.8679	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660						
Regional Shopping Center	14618.9	0.1577	1.4332	1.2039	8.6000e-003		0.1089	0.1089		0.1089	0.1089						
Single Family Housing	309398	3.3367	28.5132	12.1333	0.1820		2.3053	2.3053		2.3053	2.3053						
Total		**16.2606**	**144.4631**	**99.5307**	**0.8869**		**11.2346**	**11.2346**		**11.2346**	**11.2346**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	261.822	2.8236	24.1287	10.2675	0.1540		1.9508	1.9508		1.9508	1.9508						
General Light Industry	913.105	9.8472	89.5201	75.1969	0.5371		6.8035	6.8035		6.8035	6.8035						
General Office Building	8.85237	0.0955	0.8679	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660						
Regional Shopping Center	14.6189	0.1577	1.4332	1.2039	8.6000e-003		0.1089	0.1089		0.1089	0.1089						
Single Family Housing	309.398	3.3367	28.5132	12.1333	0.1820		2.3053	2.3053		2.3053	2.3053						
Total		**16.2606**	**144.4631**	**99.5307**	**0.8869**		**11.2346**	**11.2346**		**11.2346**	**11.2346**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Unmitigated	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	56.4304					0.0000	0.0000		0.0000	0.0000						
Consumer Products	522.1764					0.0000	0.0000		0.0000	0.0000						
Hearth	1,142.9050	187.6338	3,417.8262	10.2476		534.2862	534.2862		534.2862	534.2862						
Landscaping	24.2682	9.3293	808.5574	0.0429		4.5009	4.5009		4.5009	4.5009						
Total	**1,745.7800**	**196.9632**	**4,226.3836**	**10.2905**		**538.7870**	**538.7870**		**538.7870**	**538.7870**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	56.4304					0.0000	0.0000		0.0000	0.0000						
Consumer Products	522.1764					0.0000	0.0000		0.0000	0.0000						
Hearth	1,142.9050	187.6338	3,417.8262	10.2476		534.2862	534.2862		534.2862	534.2862						
Landscaping	24.2682	9.3293	808.5574	0.0429		4.5009	4.5009		4.5009	4.5009						
Total	**1,745.7800**	**196.9632**	**4,226.3836**	**10.2905**		**538.7870**	**538.7870**		**538.7870**	**538.7870**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/20/2020 12:45 PM

Beaumont GP - 2040 SOI Non VMT - Riverside-South Coast County, Winter

Beaumont GP - 2040 SOI Non VMT

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	931.16	1000sqft	21.38	931,157.00	0
General Light Industry	10,258.03	1000sqft	235.49	10,258,032.00	0
Apartments Low Rise	6,136.00	Dwelling Unit	383.50	6,136,000.00	17549
Single Family Housing	3,691.00	Dwelling Unit	1,198.38	6,643,800.00	10556
Regional Shopping Center	2,403.56	1000sqft	55.18	2,403,556.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per SOI only General Plan Land Use Summary. Based on Max. Residental density and Typical non-residential intensity.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Not Modeled.VMT Modelled seperately.

Woodstoves - Assumed no wood burning fireplaces in apartments.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10,000.00	0.00
tblConstructionPhase	PhaseEndDate	5/16/2058	1/16/2020
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberNoFireplace	613.60	920.40
tblFireplaces	NumberWood	306.80	0.00
tblLandUse	LandUseSquareFeet	10,258,000.00	10,258,032.00
tblLandUse	LandUseSquareFeet	2,403,560.00	2,403,556.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	42.70	0.00
tblVehicleTrips	WD_TR	9.52	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	1.0200e-003	0.0000	0.0000	9.3000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0200e-003**	**0.0000**	**0.0000**	**9.3000e-004**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	1.0200e-003	0.0000	0.0000	9.3000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0200e-003**	**0.0000**	**0.0000**	**9.3000e-004**	**0.0000**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Energy	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1,762.0406**	**341.4263**	**4,325.9142**	**11.1775**	**0.0000**	**550.0216**	**550.0216**	**0.0000**	**550.0216**	**550.0216**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Energy	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1,762.0406**	**341.4263**	**4,325.9142**	**11.1775**	**0.0000**	**550.0216**	**550.0216**	**0.0000**	**550.0216**	**550.0216**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/17/2020	1/16/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Light Industry	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
General Office Building	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Regional Shopping Center	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512
Single Family Housing	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						
NaturalGas Unmitigated	16.2606	144.4631	99.5307	0.8869		11.2346	11.2346		11.2346	11.2346						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	261822	2.8236	24.1287	10.2675	0.1540		1.9508	1.9508		1.9508	1.9508						
General Light Industry	913105	9.8472	89.5201	75.1969	0.5371		6.8035	6.8035		6.8035	6.8035						
General Office Building	8852.37	0.0955	0.8679	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660						
Regional Shopping Center	14618.9	0.1577	1.4332	1.2039	8.6000e-003		0.1089	0.1089		0.1089	0.1089						
Single Family Housing	309398	3.3367	28.5132	12.1333	0.1820		2.3053	2.3053		2.3053	2.3053						
Total		**16.2606**	**144.4631**	**99.5307**	**0.8869**		**11.2346**	**11.2346**		**11.2346**	**11.2346**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	261.822	2.8236	24.1287	10.2675	0.1540		1.9508	1.9508		1.9508	1.9508						
General Light Industry	913.105	9.8472	89.5201	75.1969	0.5371		6.8035	6.8035		6.8035	6.8035						
General Office Building	8.85237	0.0955	0.8679	0.7290	5.2100e-003		0.0660	0.0660		0.0660	0.0660						
Regional Shopping Center	14.6189	0.1577	1.4332	1.2039	8.6000e-003		0.1089	0.1089		0.1089	0.1089						
Single Family Housing	309.398	3.3367	28.5132	12.1333	0.1820		2.3053	2.3053		2.3053	2.3053						
Total		**16.2606**	**144.4631**	**99.5307**	**0.8869**		**11.2346**	**11.2346**		**11.2346**	**11.2346**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						
Unmitigated	1,745.7800	196.9632	4,226.3836	10.2906		538.7870	538.7870		538.7870	538.7870						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	56.4304					0.0000	0.0000		0.0000	0.0000						
Consumer Products	522.1764					0.0000	0.0000		0.0000	0.0000						
Hearth	1,142.9050	187.6338	3,417.8262	10.2476		534.2862	534.2862		534.2862	534.2862						
Landscaping	24.2682	9.3293	808.5574	0.0429		4.5009	4.5009		4.5009	4.5009						
Total	**1,745.7800**	**196.9632**	**4,226.3836**	**10.2905**		**538.7870**	**538.7870**		**538.7870**	**538.7870**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	56.4304					0.0000	0.0000		0.0000	0.0000						
Consumer Products	522.1764					0.0000	0.0000		0.0000	0.0000						
Hearth	1,142.9050	187.6338	3,417.8262	10.2476		534.2862	534.2862		534.2862	534.2862						
Landscaping	24.2682	9.3293	808.5574	0.0429		4.5009	4.5009		4.5009	4.5009						
Total	**1,745.7800**	**196.9632**	**4,226.3836**	**10.2905**		**538.7870**	**538.7870**		**538.7870**	**538.7870**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Beaumont GP - 2040 City VMT Only

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	134,255.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Traffic VMT Calculations. 2040 Citywide service population.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Per Traffic VMT Calculations. 2040 Citywide only VMT rates per service population.

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

tblVehicleTrips	CC_TL	8.40	1.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	28.90
tblVehicleTrips	SU_TR	0.00	28.90
tblVehicleTrips	WD_TR	0.00	28.90

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.8000e-004	0.0000	0.0000	6.2000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**6.2000e-004**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.8000e-004	0.0000	0.0000	6.2000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**6.2000e-004**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	2,276.0050	24,548.7229	9,961.1734	64.6211	3,006.1629	18.6484	3,024.8113	803.3845	17.3233	820.7079						
Total	**2,277.2513**	**24,548.8452**	**9,974.7932**	**64.6221**	**3,006.1629**	**18.6967**	**3,024.8597**	**803.3845**	**17.3717**	**820.7562**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	2,276.0050	24,548.7229	9,961.1734	64.6211	3,006.1629	18.6484	3,024.8113	803.3845	17.3233	820.7079						
Total	**2,277.2513**	**24,548.8452**	**9,974.7932**	**64.6221**	**3,006.1629**	**18.6967**	**3,024.8597**	**803.3845**	**17.3717**	**820.7562**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/20/2020	1/19/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2,276.0050	24,548.7229	9,961.1734	64.6211	3,006.1629	18.6484	3,024.8113	803.3845	17.3233	820.7079						
Unmitigated	2,276.0050	24,548.7229	9,961.1734	64.6211	3,006.1629	18.6484	3,024.8113	803.3845	17.3233	820.7079						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	3,879,969.50	3,879,969.50	3879969.50	1,412,308,898	1,412,308,898
Total	3,879,969.50	3,879,969.50	3,879,969.50	1,412,308,898	1,412,308,898

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Parking	0.00	1.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Parking	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Unmitigated	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Total	**1.2463**	**0.1224**	**13.6198**	**1.0200e-003**		**0.0483**	**0.0483**		**0.0483**	**0.0483**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Total	**1.2463**	**0.1224**	**13.6198**	**1.0200e-003**		**0.0483**	**0.0483**		**0.0483**	**0.0483**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/21/2020 9:12 AM

Beaumont GP - 2040 City VMT Only - Riverside-South Coast County, Winter

Beaumont GP - 2040 City VMT Only

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	134,255.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Traffic VMT Calculations. 2040 Citywide service population.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Per Traffic VMT Calculations. 2040 Citywide only VMT rates per service population.

Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

tblVehicleTrips	CC_TL	8.40	1.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	28.90
tblVehicleTrips	SU_TR	0.00	28.90
tblVehicleTrips	WD_TR	0.00	28.90

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.8000e-004	0.0000	0.0000	6.2000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**6.2000e-004**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.8000e-004	0.0000	0.0000	6.2000e-004	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**6.2000e-004**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	1,824.0411	23,853.0661	10,570.7510	58.2823	3,006.1629	19.0612	3,025.2241	803.3845	17.7186	821.1031						
Total	**1,825.2874**	**23,853.1884**	**10,584.3707**	**58.2833**	**3,006.1629**	**19.1095**	**3,025.2724**	**803.3845**	**17.7669**	**821.1514**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	1,824.0411	23,853.0661	10,570.7510	58.2823	3,006.1629	19.0612	3,025.2241	803.3845	17.7186	821.1031						
Total	**1,825.2874**	**23,853.1884**	**10,584.3707**	**58.2833**	**3,006.1629**	**19.1095**	**3,025.2724**	**803.3845**	**17.7669**	**821.1514**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/20/2020	1/19/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,824.0411	23,853.0661	10,570.7510	58.2823	3,006.1629	19.0612	3,025.2241	803.3845	17.7186	821.1031						
Unmitigated	1,824.0411	23,853.0661	10,570.7510	58.2823	3,006.1629	19.0612	3,025.2241	803.3845	17.7186	821.1031						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	3,879,969.50	3,879,969.50	3879969.50	1,412,308,898	1,412,308,898
Total	3,879,969.50	3,879,969.50	3,879,969.50	1,412,308,898	1,412,308,898

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Parking	0.00	1.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Parking	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Unmitigated	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Total	**1.2463**	**0.1224**	**13.6198**	**1.0200e-003**		**0.0483**	**0.0483**		**0.0483**	**0.0483**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	1.2463	0.1224	13.6198	1.0200e-003		0.0483	0.0483		0.0483	0.0483						
Total	**1.2463**	**0.1224**	**13.6198**	**1.0200e-003**		**0.0483**	**0.0483**		**0.0483**	**0.0483**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/21/2020 8:58 AM

Beaumont GP - 2040 SOI VMT Only - Riverside-South Coast County, Summer

Beaumont GP - 2040 SOI VMT Only

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	32,949.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Traffic VMT Calculations. Based on 2040 SOI service population only.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Per Traffic VMT Calculations. 2040 SOI VMT per service population only.

Table Name	Column Name	Default Value	New Value
tblVehicleTrips	CC_TL	8.40	1.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	0.00

tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	33.30
tblVehicleTrips	SU_TR	0.00	33.30
tblVehicleTrips	WD_TR	0.00	33.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.4679	0.0000	0.0000	0.4463	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4679**	**0.0000**	**0.0000**	**0.4463**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.4679	0.0000	0.0000	0.4463	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4679**	**0.0000**	**0.0000**	**0.4463**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	643.6227	6,942.0392	2,816.8820	18.2739	850.1013	5.2735	855.3748	227.1860	4.8988	232.0848						
Total	**643.9286**	**6,942.0693**	**2,820.2246**	**18.2742**	**850.1013**	**5.2854**	**855.3867**	**227.1860**	**4.9107**	**232.0967**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	643.6227	6,942.0392	2,816.8820	18.2739	850.1013	5.2735	855.3748	227.1860	4.8988	232.0848						
Total	**643.9286**	**6,942.0693**	**2,820.2246**	**18.2742**	**850.1013**	**5.2854**	**855.3867**	**227.1860**	**4.9107**	**232.0967**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/20/2020	1/19/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	643.6227	6,942.0392	2,816.8820	18.2739	850.1013	5.2735	855.3748	227.1860	4.8988	232.0848						
Unmitigated	643.6227	6,942.0392	2,816.8820	18.2739	850.1013	5.2735	855.3748	227.1860	4.8988	232.0848						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	1,097,201.70	1,097,201.70	1097201.70	399,381,419	399,381,419
Total	1,097,201.70	1,097,201.70	1,097,201.70	399,381,419	399,381,419

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Parking	0.00	1.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Parking	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Unmitigated	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Total	**0.3059**	**0.0300**	**3.3426**	**2.5000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Total	**0.3059**	**0.0300**	**3.3426**	**2.5000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.2

Date: 1/21/2020 8:59 AM

Beaumont GP - 2040 SOI VMT Only - Riverside-South Coast County, Winter

Beaumont GP - 2040 SOI VMT Only

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	32,949.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2040
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per Traffic VMT Calculations. Based on 2040 SOI service population only.

Construction Phase - Not Modeled

Off-road Equipment - Not Modeled

Vehicle Trips - Per Traffic VMT Calculations. 2040 SOI VMT per service population only.

Table Name	Column Name	Default Value	New Value
tblVehicleTrips	CC_TL	8.40	1.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CW_TL	16.60	0.00

tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	33.30
tblVehicleTrips	SU_TR	0.00	33.30
tblVehicleTrips	WD_TR	0.00	33.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.4679	0.0000	0.0000	0.4463	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4679**	**0.0000**	**0.0000**	**0.4463**	**0.0000**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.4679	0.0000	0.0000	0.4463	0.0000						
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.4679**	**0.0000**	**0.0000**	**0.4463**	**0.0000**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	515.8136	6,745.3171	2,989.2621	16.4814	850.1013	5.3902	855.4915	227.1860	5.0106	232.1966						
Total	**516.1195**	**6,745.3471**	**2,992.6047**	**16.4817**	**850.1013**	**5.4021**	**855.5034**	**227.1860**	**5.0224**	**232.2085**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	515.8136	6,745.3171	2,989.2621	16.4814	850.1013	5.3902	855.4915	227.1860	5.0106	232.1966						
Total	**516.1195**	**6,745.3471**	**2,992.6047**	**16.4817**	**850.1013**	**5.4021**	**855.5034**	**227.1860**	**5.0224**	**232.2085**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/20/2020	1/19/2020	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	515.8136	6,745.3171	2,989.2621	16.4814	850.1013	5.3902	855.4915	227.1860	5.0106	232.1966						
Unmitigated	515.8136	6,745.3171	2,989.2621	16.4814	850.1013	5.3902	855.4915	227.1860	5.0106	232.1966						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	1,097,201.70	1,097,201.70	1097201.70	399,381,419	399,381,419
Total	1,097,201.70	1,097,201.70	1,097,201.70	399,381,419	399,381,419

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Parking	0.00	1.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Parking	0.566189	0.033707	0.192293	0.100413	0.008756	0.004001	0.016522	0.070107	0.001420	0.001057	0.004327	0.000696	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Unmitigated	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Total	**0.3059**	**0.0300**	**3.3426**	**2.5000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.3059	0.0300	3.3426	2.5000e-004		0.0119	0.0119		0.0119	0.0119						
Total	**0.3059**	**0.0300**	**3.3426**	**2.5000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Cultural Resource Assessment for the City of Beaumont General Plan Update, City of Beaumont, Riverside County, California

Roberta Thomas, MA, RPA, and Michael Mirro, MA, RPA

Prepared By

Applied EarthWorks, Inc.
133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107

Prepared For
Melissa Perez, Senior Environmental Planner
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506

February 2018

National Archaeological Database (NADB)
Type of Study: Literature Search, Cultural Resource Sensitivity Analysis
USGS 7.5' Quadrangles: Beaumont, CA; El Casco, CA; San Jacinto, CA
Acreage: 24,813 acres
Level of Investigation: CEQA Desktop constraints analysis
Key Words: Beaumont; General Plan Update; San Bernardino County; Riverside County; CEQA

MANAGEMENT SUMMARY

Applied EarthWorks, Inc. (Æ) was retained by Albert A. Webb Associates to conduct a desktop analysis to assess the cultural resource sensitivity for the City of Beaumont's General Plan Update (Project) in Riverside County, California. The proposed Project is an update to the City's 2006 General Plan. The City of Beaumont (City) is the lead agency for the purposes of the California Environmental Quality Act (CEQA).

This report summarizes the methods and results of the baseline cultural resource assessment of the Project area. This assessment included archaeological and historical background research, communication with Native American tribal representatives, and a desktop analysis of cultural resource sensitivity. The purpose of the investigation was to determine the potential for the Project to impact historical resources under CEQA and to develop mitigation measures to ensure that any impacts to historical resources are less than significant.

The cultural literature and records searches at the Eastern Information Center (EIC) of the California Historical Resources Information System at the University of California, Riverside, indicated that 293 cultural resources have been documented within the city of Beaumont, the city of Beaumont's Sphere of Influence, and the proposed Annexation area. The majority of these (n = 201) are built-environment resources consisting in large part of single family residences, but also include commercial properties, civic buildings, transmission lines, flood control structures, roadways, and at least one trail. The remaining resources consist of 52 prehistoric archaeological sites, 35 historical archaeological sites, and 5 sites containing both historical and prehistoric components.

As part of the cultural resource assessment of the Project area, Æ also requested a search of the Sacred Lands Files (SLF) from the Native American Heritage Commission (NAHC). Results of the SLF search indicate that there are known Native American cultural resources within the Project area and that the Torres-Martinez Desert Cahuilla Indians should be contacted for more information. Native American individuals and organizations, including the Torres-Martinez Desert Cahuilla Indians, were contacted to elicit information on Native American resources within the proposed Project area. Of the 22 different groups and/or individuals contacted, six responses have been received to date. The Agua Caliente Band of Cahuilla Indians (ACBCI) indicated that the Project is outside the Tribe's reservation boundaries but within the Tribe's Traditional Use Area (TUA). As such, the ACBCI Tribal Historic Preservation Office requests copies of any cultural resource documentation (report and site records) generated in connection with this Project. The Augustine Band of Cahuilla Mission Indians stated that the Tribe is unaware of any specific cultural resources in the area and recommends contacting a tribe(s) in closer proximity to the Project. However, the Tribe does recommend Native American monitoring and requests to be informed if any cultural resources are discovered. The San Manuel Band of Mission Indians (SMBMI) indicated that a portion of the Project area lies within Serrano ancestral territory and, as such, the Project is of interest to the SMBMI. The SMBMI stated that the western portion of the Project, within San Timoteo Canyon and the Badlands, is rich in

cultural material and important to the Tribe. The Serrano Nation of Mission Indians indicated that the Project area and surrounding vicinity are sensitive for Native American cultural resources and the Tribe would like to be notified if any Native American resources are discovered. The Soboba Band of Luiseno Indians stated that even though the Project is outside the Tribe's existing reservation the Project area is within the Tribe's TUA and in close proximity to known sites. As such, the Tribe made five requests because of the multiple areas of potential impact identified during an in-house database search. Finally, the Viejas Band of Kumeyaay Indians stated that the Tribe determined the Project has little significance or ties to the Viejas. As such, the Tribe recommends contacting tribes in closer proximity to the Project but still requests to be notified of any inadvertent discoveries.

A copy of the final report will be placed on file at the EIC.

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1
INTRODUCTION

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (*Æ*) conducted a desktop analysis to assess the cultural resource sensitivity for the City of Beaumont's (City) General Plan Update (Project) in Riverside County, California. The Project requires discretionary approval from the City and thus is subject to compliance with the California Environmental Quality Act (CEQA), as amended. Matthew Tennyson, M.A., RPA, served as Principal Investigator; Roberta Thomas, MA, RPA, served as Project Manager/Archaeologist and authored this report; and Michael Mirro, MA, RPA, served as GIS Analyst/Geoarchaeologist and contributing author.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is located within the City of Beaumont and its Sphere of Influence (SOI) in north-central Riverside County, approximately 70 miles east of downtown Los Angeles, within the San Gorgonio Pass region along Interstate 10 (I-10) and State Route 60 (SR 60) (Figure 1-1). Specifically, the Project is within portions of Township 2 South, Range 1 West, Sections 24-36; Township 2 South, Range 2 West, Sections 44-36; Township 3 South, Range 1 West, Sections 1-28 and 32-36; Township 3 South, Range 1 East, Sections 19 and 30-31; Township 3 South, Range 2 West, Sections 1-3 and 12-13; Township 4 South, Range 1 East, Section 6; and Township 4 South, Range 1 West, Sections 1-4 and 10-11 on the El Casco, San Jacinto, and Beaumont, CA 7.5-minute U.S. Geological Survey quadrangles (Figure 1-2).

The proposed Project is an update to the City's 2007 General Plan. The Planning Area (Project area) encompasses approximately 26,371 acres (41 square miles), of which 19,188 acres (30 square miles) are within the corporate boundaries of the City and 7,183 acres (11 square miles) are within the City's Sphere of Influence (SOI). The City is bordered by the County of Riverside and City of San Jacinto to the south, County of Riverside and City of Banning to the east, the County of Riverside to the west, and the City of Calimesa and community of Cherry Valley to the north. The existing City limits generally extend north and south of I-10 and SR 60. The City's SOI encompasses areas to the south of I-10 and SR 60 in the regions referred to as Lamb Canyon, Laborde Canyon, portions of the San Timoteo Badlands and Poppet Flats.

1.2 REGULATORY CONTEXT

1.2.1 California Environmental Quality Act

The Project is subject to compliance with the CEQA, as amended. The CEQA Statutes and Guidelines (Title 14 California Code of Regulations [CCR] Section [§] 15064.5) direct lead agencies to determine whether a project will have a significant impact on significant historical resources. Generally, a cultural resource shall be considered historically significant if it is

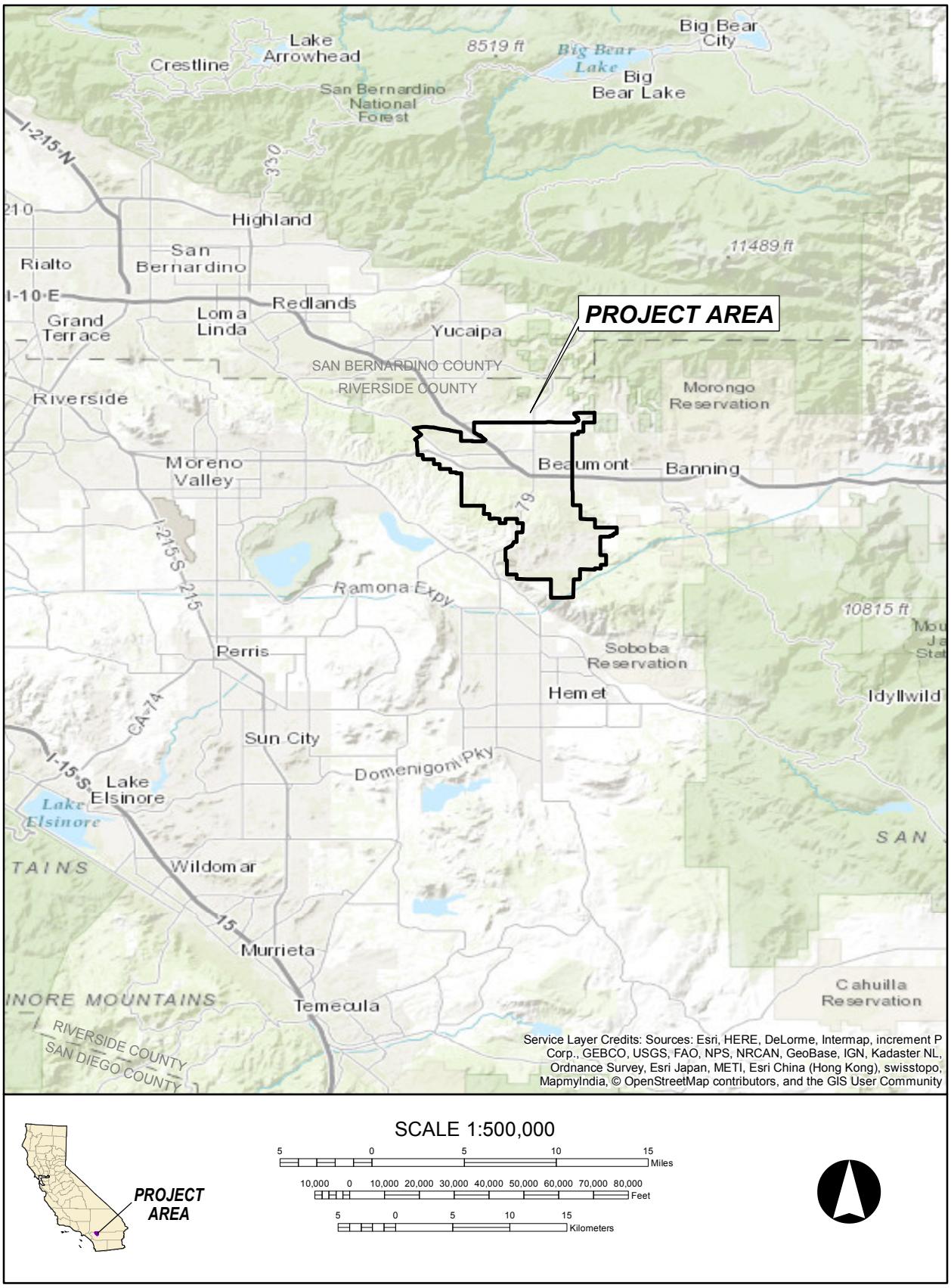

Figure 1-1 Project vicinity map.

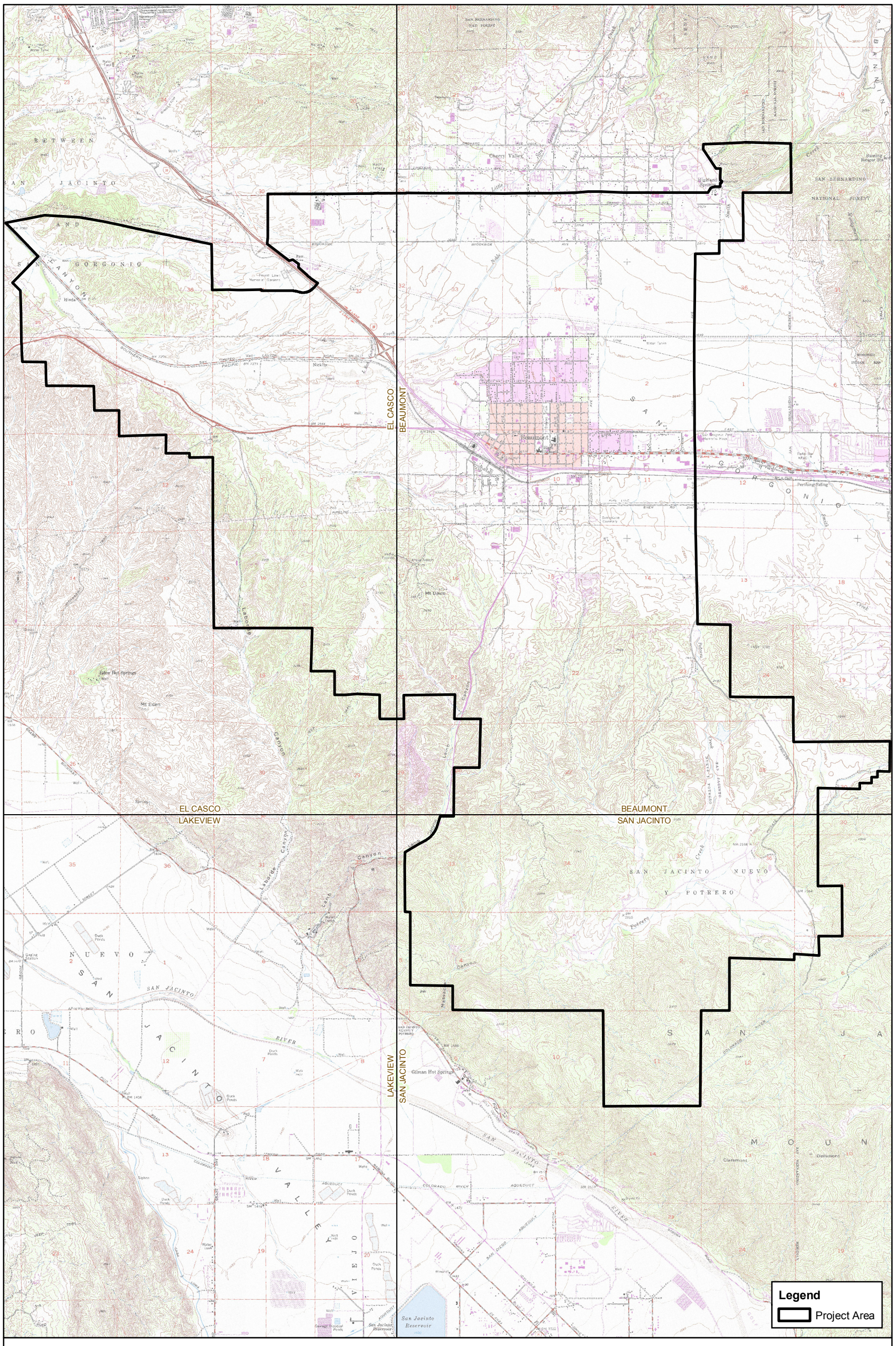

Figure 1-2 Project location map.

45 years old or older; possesses integrity of location, design, setting, materials, workmanship, feeling, and association; and meets the requirements for listing in the California Register of Historical Resources (CRHR) under any one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,

4. Has yielded, or may be likely to yield, information important in prehistory or history [14 CCR § 15064.5].

The cited statutes and guidelines specify how cultural resources are to be managed in the context of proposed projects, such as the current Project. Prehistoric and historical archaeological sites as well as standing structures and other built-environment features deemed historically significant must be considered in project planning and development. A project with an effect 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 (Public Resources Code [PRC] § 21084.1).

1.2.2 Other State Statutes and Regulations

California Government Codes 65092; 65351; 65352, 65352.3; 65352.4; 65352.5; and 65560 (Senate Bill 18)

As of March 1, 2005, California Government Codes 65092; 65351; 65352; 65352.3; 65352.4; 65352.5; and 65560, formerly known as Senate Bill 18 (SB 18), requires that cities and counties contact and consult with Native American tribes prior to amending or adopting any general plan or specific plan, or designing lands as open space. The purpose of SB 18 is to involve Native Americans at the onset of the planning process to allow for considerations concerning the protection of traditional tribal cultural places in the context of broad local land use policy prior to individual site-specific, project level, and land use decisions. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3). At least 45 days before a local government adopts or substantially amends a general plan or specific plan, the local government must refer the proposed action to agencies, including Native American tribes, for review and comment.

California Assembly Bill 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources—tribal cultural resources—for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are included or determined eligible for inclusion in the CRHR, included in a local register of historical resources, or are determined by the lead

CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult in good faith with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to impact a tribal cultural resource such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

Native American Heritage Commission

PRC § 5097.91 established the NAHC, whose duties include maintaining the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. PRC § 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

1.3 REPORT ORGANIZATION

This report documents the results of a desktop cultural resource assessment of the Project area for the proposed Project. Chapter 1 has introduced the scope of the work. Chapter 2 synthesizes the natural and cultural setting of the Project area and surrounding region. Chapter 3 presents the results of the cultural resource literature and records search conducted at the Eastern Information Center (EIC) of the California Historical Resource Information System (CHRIS), housed at the University of California, Riverside. Chapter 4 summarizes the Sacred Lands File (SLF) search with the NAHC and Native American communications. The cultural resource sensitivity study methods employed during this investigation and findings are outlined in Chapter 5 and management recommendations and proposed mitigation measures provided in Chapter 6. This is followed by bibliographic references and appendices.

2
SETTING

This chapter describes the prehistoric, ethnographic, and historical cultural setting of the Project area to provide a context for understanding the nature and significance of cultural properties identified within the region. Prehistorically, ethnographically, and historically, the nature and distribution of human activities in the region have been affected by such factors as topography and the availability of water and natural resources. Therefore, prior to a discussion of the cultural setting, the environmental setting of the area is summarized below.

2.1 ENVIRONMENTAL SETTING

The City of Beaumont is within the San Gorgonio Pass region of Southern California, south of the San Bernardino Mountains, within the San Jacinto Mountains of the Peninsular Ranges geomorphic province of California. The region surrounding the City is a geologically complex area, in part due to movement along the San Andreas fault, Banning fault, San Gorgonio fault, and others (Lancaster et al. 2012; SCEDC 2013; Yule 2009). Annual precipitation in the area ranges from 18 to 20 inches. The City encompasses a portion of the South Coast Bioregion that is sparsely vegetated with scrub brush and grasses and populated by a variety of reptiles, small mammals, birds, and insects.

The Peninsular Ranges extend approximately 125 miles from the Los Angeles Basin to the tip of Baja California and are bounded by the Elsinore fault zone and the Colorado Desert in the east and the Pacific Coast on the west (Morton and Miller 2006). The geology in the northern reaches of the range, including the San Jacinto Mountains, consists of Paleozoic gneiss, schist, and other older metamorphic rocks; Mesozoic granitic rocks of the Southern California batholith; and Cenozoic marine and terrestrial deposits. The highest point in the range is San Jacinto Peak at 10,805 feet above mean sea level (Norris and Webb 1976).

2.2 PREHISTORIC SETTING

This section describes the prehistoric cultural setting of the area to provide a context for understanding the types, nature, and significance of the prehistoric cultural resources identified within the vicinity of the Project area. The data presented herein regarding the sequence of prehistoric use, adaptation, and occupation of the interior valleys and mountain localities that include the Project area, are summarized from a synthesis of more than 10 years of archaeological research conducted as part of the Eastside Reservoir Project (ESRP) (now known as Diamond Valley Lake), located approximately 15 miles south of the Project area (Goldberg et al. 2001). To further understand the types and nature of the prehistoric cultural deposits identified within the Project area within the frame of a wider geographical context, a review of the coastal (Wallace 1955, 1978; Warren 1968) and desert (Warren 1980; Warren and Crabtree 1986) regional chronologies to which most researchers have subscribed is also provided.

The prehistory of inland southern California has been less thoroughly understood than that of the adjacent desert and coastal regions. Prior to the ESRP studies, no comprehensive synthesis had been developed specifically for the interior valley and mountain localities of cismontane southern California that include the Project area. The lack of an adequate culture history for this portion of California can be attributed to at least three major factors: (1) the nature and scope of investigations in the region, where research has been concentrated for the most part at single sites or on specific problems; (2) the complex historical sequence of investigations and discoveries, combined with a tendency on the part of many authors to explain similarities in assemblages to cultural diffusion; and (3) the confusion of typological and chronological terminology, which has led to ill-defined units that alternately describe time periods, tool morphology, social groupings, or technological adaptations (see Goldberg and Arnold 1988).

Two regional chronologies are widely cited in the archaeological literature for the prehistory of the coastal regions of southern California (Wallace 1955, 1978; Warren 1968). These chronologies are generalized temporal schemes based on the presence or absence of certain artifact types; both chronologies span the known prehistoric occupation of coastal southern California. The units used by Wallace are "horizons" or "periods," which are extensive in space but restricted in time. The units employed by Warren are "traditions," which may be spatially restricted but display temporal continuity. A more recent chronological synthesis for coastal southern California has been provided by Koerper and Drover (1983). This synthesis employs Wallace's (1955) horizon terminology, but uses radiometric data to order stylistic changes observed in the artifact assemblages, which are interpreted as temporal indications of cultural change over time.

In the absence of absolute chronological indicators for most inland sites, researchers have generally employed typological cross dating of artifact types from either coastal or desert sequences, often as the sole means for assigning age to archaeological sites within the interior valleys, including the Project area. However, two large reservoir projects, first the Perris Reservoir Project (O'Connell et al. 1974), and then most recently, the Eastside Reservoir Project (Goldberg et al. 2001), generated large data sets that have built upon one another to provide a basis for resolving some of these regional discrepancies. Thus, the following discussion of the prehistoric cultural setting for the Project study region is drawn from the cultural sequence developed for the ESRP study area. This chronology was based first on artifact cross dating and geomorphological interpretations, and then refined with radiocarbon and obsidian hydration dates (Onken and Horne 2001; Robinson 1998, 2001). The resultant chronology draws heavily on a cultural sequence defined by Warren (1984) that is based largely on archaeological work conducted in the Colorado and Mojave deserts. However, because Warren's chronology used temporal period names that suggest links to the Mojave, these were replaced in the ESRP chronology by value neutral terms.

For purposes of this report, the discussion will begin at 9500 Before Present (B.P.), because no evidence of the earlier Paleo-Indian Period (ca. 12,000–9500 B.P.) has been found within the vicinity of the Project area. It should be noted however, that an isolated burial, CA-RIV-5786, was found during excavation of a portion of Salt Creek Channel near ESRP; a single radiocarbon date from this burial yielded an uncalibrated date of 7380 ± 300 B.P. (McDougall 1995).

2.2.1 Early Archaic Period (ca. 9500–7000 B.P.)

The Early Archaic period saw a continuation of weather patterns resulting in the desert interior apparently much more favorable for human occupation than the cismontane valleys of southern California. It has been postulated that small, highly mobile groups still traveled over a wide home range utilizing highly portable tool kits to procure and process critical resources, with brief and anticipated intervals of seasonal sedentism. However, because of the arid conditions within the interior valley areas, prehistoric use of the general study area would still have been negligible; populations would still have favored the coastal or interior desert regions. Nonetheless, those populations exploiting the interior valleys would still have been tethered to the few reliable, drought-resistant water sources such as Lake Elsinore, Mystic Lake, and possibly the Cajalco Basin (Goldberg et al. 2001).

Archaeological sites documented within the vicinity of the Project area dating to the Early Archaic or containing meager evidence suggestive of sporadic use during this time period are rare, supporting the hypothesis of negligible prehistoric use of the inland valley areas of western Riverside County during this period. Within the ESRP study area, only two site components are firmly dated to the Early Archaic. One component includes a single human burial at CA-RIV-5786 dating to 7380 ± 300 B.P. and capped by several large, highly shaped metates (McDougall 1995). The second is the lower cultural component at CA-RIV-5086, a small temporary camp dated with obsidian hydration data and stratigraphic information to the Early Archaic; this component contained a relatively sparse scatter of flaked and ground stone artifacts and faunal remains, but no cultural features, suggesting that CA-RIV-5086 was initially utilized as a resource extraction locale, possibly situated adjacent to a wetlands environment during the Early Archaic period.

Although much of the data gathered during the ESRP studies seem to corroborate the notion of sporadic use of the study region by small, highly mobile bands utilizing highly portable tool kits during the Early Archaic, the data from CA-RIV-5786, and one other site (CA-RIV-6069) investigated recently, seem to contradict this theory. Identified during the Metropolitan Water District's Inland Feeder Pipeline Project, CA-RIV-6069 is situated on an alluvial fan emanating north from the Lakeview Mountains in western Riverside County, just above the floor of the San Jacinto Valley and south of Mystic Lake; numerous springs are present along the mountain front overlooking the embayment (Horne and McDougall 2008). The cultural deposits at CA-RIV-6069 were encountered at depths ranging from 1.5 meters (5 feet) to 3.9 meters (13 feet) below the modern ground surface; the vertical distribution of cultural materials and features documented indicates that two distinct cultural strata representing two periods of cultural occupation are present. A more intensive cultural occupation was encountered between approximately 2.7 meters (9 feet) to 3.9 meters (13 feet) below the modern ground surface; eight radiocarbon assays from cultural features identified in this lower component range from 7940 to 8370 B.P. A less intensive period of site use is represented by materials and features encountered between 1.5 meters (5 feet) to 2.4 meters (8 feet) below the ground surface; charcoal recovered from an intact fire hearth within the upper component was assayed to 2230 B.P., or to the Late Archaic Period. These data suggest that the lower component at CA-RIV-6069 is the oldest prehistoric cultural deposit ever investigated in the greater San Jacinto Valley, and among the oldest deposits ever investigated in inland southern California.

Emergency data-recovery excavations in a portion of CA-RIV-6069 yielded an extensive assemblage of flaked and ground stone tools, marine and terrestrial faunal remains, and bone and shell tools and ornaments. Additionally, 15 discrete cultural features were identified, including intact fire hearths, ground stone artifact caches, and concentrations of artifacts, fire-altered rock, and unmodified manuported cobbles representing remnants of former activity areas; 12 of these cultural features were encountered within the lower cultural component. It should also be noted that the lower component identified at CA-RIV-6069 yielded 37 intentionally molded and fired ceramic objects, possibly the oldest ceramic industry identified to date in the Western Hemisphere (Horne and McDougall 2008). As well, the presence of numerous cultural features at CA-RIV-6069, and the extreme degree of fragmentation, fire alteration, and reuse/recycling of large, highly shaped ground stone implements suggests fairly intensive residential use (either repeated or long term) of CA-RIV-6069 during the Early Archaic. The presence of several artifact caches suggests that site reuse was anticipated. Thus, CA-RIV-6069 may have been a destination point with a predictable resource base that was located on a scheduled, seasonal collecting round. Resource predictability, and the planning depth and organizational characteristics necessary to take full advantage of it, fosters expectations of site reoccupation and longer-term residential occupations.

One other site containing an Early Archaic component worthy of note is CA-RIV-2798/H, or the Lake Elsinore Site. CA-RIV-2798/H is situated at the mouth of the outlet channel of Lake Elsinore, one of the only natural lakes in southern California. Data-recovery excavations at the site, conducted in 1993 by Statistical Research, Inc., revealed stratified cultural deposits attaining depths of nearly 3 meters (10 feet) and containing a fairly large assemblage of flaked stone tools (bifaces, unifaces, projectile points, small flake tools, and crescents); a variety of ground stone implements were also collected (Grenda 1997). Documented features include several fire hearths and hearth clean-out refuse deposits, rock clusters, and ground stone caches. Of the eight radiometric assays available for the site, one assay of 8400 ± 60 B.P. from marine shell, coupled with the crescents, suggests that the initial occupation of the Lake Elsinore site may have occurred during the later portion of the Early Holocene (Grenda 1997:279). Two additional radiometric assays (4800 ± 60 B.P. and 4530 ± 80 B.P.) and six dart points, as well as several cultural features indicate that the site occupation intensified during the Middle Holocene; during subsequent periods of the Late Holocene, site occupation apparently became more sporadic and less intensive (Grenda 1997:279–284).

In summary, few sites dating to the Early Archaic have been documented within the region, supporting the theory of negligible use of the inland areas of southern California at this time because of arid conditions. Many of these sites contain only scant evidence of Early Archaic use in the form of obsidian hydration rind measurements, suggesting ephemeral site use by small, highly mobile groups. However, some sites dating to this time period (e.g., CA-RIV-2798/H and the lower cultural component at CA-RIV-6069) do contain evidence of fairly sedentary residential occupations, and evidence that site reuse was anticipated, suggesting a predictable availability of water and other critical resources. These sites have been found invariably near large, drought-resistant, inland water sources, and may have been destination points on a scheduled, seasonal round.

2.2.2 Middle Archaic Period (ca. 7000–4000 B.P.)

The Middle Archaic saw a reversal of the weather patterns which had prevailed throughout much of cismontane southern California for several millennia. By about 6000 B.P., local environmental conditions ameliorated while conditions in the deserts deteriorated, reaching maximum aridity of the postglacial period (Antevs 1955; Hall 1985; Haynes 1967; Mehringer and Warren 1976; Spaulding 1991, 1995). Spaulding (2001) proposes that a westerly air flow pattern returned to southern California, while the monsoonal weather patterns in the deserts retreated. As a result, the inland areas may have seen increased effective moisture, while the interior deserts, no longer receiving moist monsoonal flow and now in the rainshadow of the Transverse and Peninsular ranges, became quite arid. This suggests that cismontane southern California, including the Project study region, may have been a relatively more hospitable environment than the interior deserts during the middle Holocene.

Due to both the amelioration of the local environmental conditions and the deterioration of the conditions in the interior deserts, it was postulated that the inland areas of cismontane southern California would see an increase in prehistoric use and occupation after about 6000 B.P. as compared to the earlier periods (Goldberg et al. 2001). The Middle Archaic components, identified in the ESRP studies, include several intensively used residential bases and/or temporary camps containing abundant cultural debris including temporally diagnostic artifacts (Pinto and Silver Lake projectile points, crescents), at least nine complex lithic scatters which appear to have functioned as resource extraction and processing sites, and one human burial covered with large rocks and ground stone artifacts. In addition, evidence of ephemeral Middle Archaic use is present at several sites in the form of isolated radiocarbon-dated features and/or sparse scatters of obsidian debitage dated by obsidian hydration methods. The more intensively used residential locations occur along alluvial fan margins, while less intensively used areas tend to be situated on arroyo bottoms or upland benches (Goldberg et al. 2001).

In coastal southern California, the early traditions gave way to what Warren refers to as the "Encinitas Tradition" by about 7000 to 8000 B.P.; Wallace's "Period II: Food Collecting" also would be subsumed under this tradition. Inland San Diego County sites dating to this period have been assigned to the "La Jolla/Pauma Complex" by True (1958). This interval has been described frequently as the "Milling Stone Horizon" because of the preponderance of milling tools in the archaeological assemblages of sites dated to this era (Basgall and True 1985; Kowta 1969; Wallace 1955).

In the coastal and inland regions of southern California, this period of cultural development is marked by the technological advancements of seed grinding for flour and possibly the first use of marine resources, such as shellfish and marine mammals. The artifact inventory of this period is similar to that of the previous period and includes crude hammerstones, scraper planes, choppers, large drills, crescents, and large flake tools. This assemblage also includes large leaf-shaped projectile points and knives; manos and milling stones used for hard-seed grinding; and likely nonutilitarian artifacts, such as beads, pendants, charmstones, discoidals, spherical stones, and cogged stones (Kowta 1969; True 1958; Warren et al. 1961).

Although sites assigned to this stage of cultural development are similar in many respects, their content, structure, and age can vary. This variability is largely due to geographical differences

between the coast and interior; the primary difference between the archaeological assemblages of coastal and inland sites appears to be related to subsistence. Coastal occupants gathered fish and plant resources, while hunting was generally less important (projectile points are rare). The inland occupants primarily collected hard seeds and hunted small mammals; therefore, projectile points are more common in inland assemblages. King (1967:66–67) suggests that the coastal sites probably represent more permanent occupations than are found in the interior, since coastal inhabitants were sustained by more reliable and abundant food resources. A more mobile subsistence round was likely necessary for inland inhabitants. It is possible, too, that inland and coastal sites of this period represent seasonal movement by the same groups of people.

These inconsistencies in content, structure, and age of sites assignable to the "Milling Stone Horizon" have been reviewed by Goldberg and Arnold (1988:12–13, 46–50). In their discussion, the presence of a single technology (the milling stone and mano) to define a temporally meaningful analytic unit of cultural development is seen to be problematic and does not explain the variability in site assemblages and dates of this period. They argue that to assign all sites that contain milling stones and manos to the period from 8000 to 2000 B.P. implies a "cultural unity" among the peoples who deposited these artifacts. However, decades of research have documented significant variability in subsistence emphasis, mortuary practices, and nonutilitarian artifacts (e.g., cogged stones, discoidals, beads), notwithstanding great similarities in one element of the tool kit—the milling stone and the mano.

In the desert regions of southern California, the "Pinto Period" succeeded the "Lake Mojave Period," beginning at approximately 7000 B.P. and lasting to 4000 or 3500 B.P. Relatively recent paleoecological and paleohydrological evidence suggests maximum aridity in the desert regions between ca. 7000 and 5000 B.P., with amelioration beginning at approximately 5500 B.P. and continuing through 4000 B.P. (Spaulding 1991, 1995). As an adaptive response to these changing climatic conditions, the Pinto Period is characterized by necessary shifts in prehistoric subsistence practices and adaptations, with greater emphasis placed on the exploitation of plants and small animals than the preceding Lake Mojave Period, as well as a continued focus on artiodactyls (Warren 1980, 1984).

The distinctive characteristics of the "Pinto Basin Complex" as defined by Campbell and Campbell (1935) are projectile points of the Pinto series, described by Amsden (1935) as weakly shouldered, indented-base projectile points that are coarse in manufacture as well as form. Other diagnostic artifact types of this period include: large and small leaf-shaped bifaces; domed and heavy-keeled scrapers; numerous core/cobble tools; large blocky metates evincing minimal wear and small, thin, extensively used milling slabs; and shaped and unshaped manos. Throughout most of the California desert region, sites containing elements of the Pinto Basin Complex (e.g., those in the Pinto Basin, Tiefort Basin, Salt Springs, and Death Valley) are small and usually limited to surface deposits suggestive of temporary and perhaps seasonal occupation by small groups of people (Warren 1984:413).

Interestingly, one site discovered during the ESRP studies evinces purely Lake Mojave and Pinto period materials. This site, CA-RIV-5045, also known as the Diamond Valley Pinto Site, is very unique in that Pinto and Lake Mojave materials are found within well-stratified, radiometrically defined cultural deposits. In addition to the numerous dart projectile points recovered indicative of the Pinto period (i.e., Pinto-series and Silver Lake-series), these deposits contain abundant and

diverse faunal assemblages, an extensive array of flaked stone tools and ground stone implements, as well as intact cultural features ascribable to specific periods of occupation. Radiometric data, feature types, and artifact/ecofact assemblage characteristics indicate that CA-RIV-5045 was occupied most intensively between 6200–5600 B.P., and functioned as a winter-time residential base during this period (McDougall 2001).

As was noted earlier, it was posited that cismontane southern California would see an increase in human activity after about 6000 B.P. in response to changing environmental conditions. At this time, local environmental conditions ameliorated and conditions in the interior deserts reached the maximum aridity of the postglacial period. The number of sites dating to the Middle Archaic documented at the ESRP certainly increased during this period, and it is plausible that the apparent increase in human use and occupation of the ESRP study area during the Middle Archaic is related to both the amelioration of the local environment and the deterioration of the desert interior (Goldberg et al. 2001).

The distribution of sites and variety of site types (i.e., residential bases, temporary camps, and a variety of ephemeral resource extraction and processing sites) dating to the Middle Archaic at the ESRP suggest that overall use of the region likely conformed to a rest-rotation collecting strategy involving relatively brief intervals of sedentism during the midwinter ebb of yearly productivity, followed by warm-season residential movements through a series of resource procurement camps in a seasonal round (Goldberg and Horne 2001). A key feature of rest-rotation collecting is a reliance on stored foods during the interval of winter sedentism. Logistic mobility, or the collection and transport of critical resources to the home residential base, also played an important role in resource procurement, especially during the interval of seasonal sedentism and consumption of stored foods. Another key feature of this strategy is the regular rotation of settlements on a yearly or multi-yearly basis to new areas to avoid the declining rates of return associated with continuous exploitation of the same areas.

It is of interest that although the indices used to measure residential mobility for the Early and Middle Archaic components documented at the ESRP study area indicate that these early components evince a more mobile land-use strategy than later periods, and that the Middle Archaic strategy registers more mobile than the Early Archaic strategy, most data convincingly show that neither of these early periods can be characterized as fully mobile. The fragmentation of bottom grinding stones (i.e., metates, milling slabs), ranging between 80 and 100 percent for nearly all ESRP components throughout prehistory, clearly indicates that occupations were fairly sedentary or that sites were consistently reused, with ground stone being cached and reused until it was no longer functional (Klink 2001a). In addition, the occurrence of artifact and toolstone caches at several Middle Archaic sites suggests that site reuse was anticipated (Horne 2001).

While most chronometric data from the ESRP Middle Archaic components are too gross to confirm whether intensified use of the ESRP study area began after the posited ca. 6000 B.P. termination of the postglacial thermal maximum, some reliable radiocarbon assays support that proposition. Dates from three separate residential components, CA-RIV-4628/H Locus A, CA-RIV-4629/H Locus B, and CA-RIV-5045 Locus B, all postdate 6000 B.P. when tree-ring calibrations are taken into account. No reliable radiocarbon samples date Middle Archaic occupation to the postglacial thermal maximum in the ESRP study area (Goldberg 2001:570).

2.2.3 Late Archaic Period (ca. 4000–1500 B.P.)

The Late Archaic Period was one of cultural intensification in southern California. The beginning of the Late Archaic coincides with the Little Pluvial, a period of increased moisture in the region. Effective moisture continued to increase in the desert interior by approximately 3600 B.P. and lasted throughout most of the Late Archaic. This ameliorated climate allowed for more extensive occupation of the region. By approximately 2100 B.P., however, drying and warming increased, perhaps causing resource intensification.

At the ESRP study area, 23 archaeological localities show evidence that their primary use was during the Late Archaic, while eight others yielded evidence of some activity during the period. Late Archaic site types documented within the ESRP study area include residential bases with large, diverse artifact assemblages, abundant faunal remains, and cultural features, as well as temporary bases, temporary camps, and task-specific activity areas. In general, sites showing evidence of the most intensive use tend to be on range-front benches adjacent to permanent water sources such as perennial springs or larger streams, while less intensively used locales occur either on upland benches or on the margins of active alluvial fans (Goldberg 2001).

Evidence from the ESRP also suggests increased sedentism during this period, with a change to a semi-sedentary land-use and collection strategy. The profusion of features, and especially refuse deposits in Late Archaic components, suggests that seasonal encampments saw longer use and more frequent reuse than during the latter part of the Middle Archaic, with increasing moisture improving the conditions of southern California after ca. 3100 B.P. (Horne 2001). Drying and warming after ca. 2100 B.P. likely exacted a toll on expanding populations, influencing changes in resource procurement strategies, promoting economic diversification and resource intensification, and perhaps resulting in a permanent shift towards greater sedentism (Goldberg 2001).

Technologically, the artifact assemblage of this period was similar to that of the preceding Middle Archaic; new tools were added either as innovations or as "borrowed" cultural items. Diagnostic projectile points of this period are still fairly large (dart point size), but also include more refined notched (Elko), concave base (Humboldt), and small stemmed (Gypsum) forms (Warren 1984). Late in the period, Rose Spring arrow points appeared in the archaeological record in the deserts, reflecting the spread of the bow and arrow technology from the Great Basin and the Colorado River region. However, this projectile point type was not found at the ESRP study area, and there is no evidence suggesting that the bow and arrow had come into use at this time in the inland regions of southern California.

Concerning the cultural sequences for Late Archaic coastal sites, for the period after about 5000 B.P., Warren (1968) and Wallace (1978) diverge in their chronological sequences for the coastal regions of southern California. Warren's "Encinitas Tradition" includes all areas outside the Chumash territory of the Santa Barbara coastal zone and continues until approximately 1250 B.P. Wallace, on the other hand, identifies a transition beginning approximately 5000 B.P., marking the onset of "Period III: Diversified Subsistence." In his original 1955 sequence, Wallace said this period, generally referred to as the "Intermediate Horizon," was largely based on changes in the archaeological assemblages of sites from the Santa Barbara coastal region. This horizon is characterized by a greater variety of artifacts, suggesting a greater variety of

utilized food resources. Although this interval of human occupation in coastal southern California is poorly defined and dated because of the paucity of representative sites, many researchers in southern California have retained Wallace's original "Intermediate Horizon" as a classification for sites dating between 5000 and 1500 B.P.

The subsistence base during this period broadened. The technological advancement of the mortar and pestle may indicate the use of acorns, an important storable subsistence resource. Hunting also presumably gained importance. An abundance of broad, leaf-shaped blades and heavy, often stemmed or notched projectile points have been found in association with large numbers of terrestrial and aquatic mammal bones. Other characteristic features of this period include the appearance of bone and antler implements and the occasional use of asphaltum and steatite. Most chronological sequences for southern California recognize the introduction of the bow and arrow by 1500 B.P., marked by the appearance of small arrow points and arrow shaft straighteners.

Some archaeologists have suggested that the changes in the coastal artifact assemblages dating to this period were the result of an influx or incursion of "Shoshonean" people from interior desert areas to the coastal regions (Rogers 1929; Wallace 1978). However, there is virtually no agreement among researchers as to the timing of the initial Shoshonean incursion into the study region; estimates generally range from 1,000 to more than 6,000 years ago, and few researchers acknowledge or question the assumption that Shoshoneans arrived to the study region and replaced some other cultural group (Goldberg and Arnold 1988:50–56). Other archaeologists suggest that cultural transition from the earlier "Milling Stone Horizon" to the succeeding "Intermediate Horizon" coastal and inland assemblages reflects progressive economic changes (e.g., trade) rather than population replacement (King 1982; Koerper 1981; Moratto 1984:164).

In general, cultural patterns remained similar in character to those of the preceding horizon. However, the material culture at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and increased efficiency in subsistence strategies (e.g., the introduction of the bow and arrow for hunting). The settlement subsistence patterns and cultural development during this period are not well understood because of a lack of data; however, the limited data do suggest that the duration and intensity of occupation at the base camps increased, especially toward the latter part of this period.

In the eastern desert regions of southern California, the "Gypsum Period" (ca. 4000 to 1500 B.P.) is generally coeval with Wallace's "Intermediate Horizon." A trend toward increasing effective moisture, which began in the late middle Holocene, culminated in a pronounced pluvial episode between approximately 3700 and 3500 B.P. At that time, a number of basins in the Mojave and Owens river drainages supported perennial lakes (Enzel et al. 1992). No comparable events are evident earlier in the paleohydrological record, developed largely since Warren's (1984) work, that date to 5000 to 4500 B.P., the dates that encompass Warren's so-called "Little Pluvial." After the end of pluvial conditions (ca. 3500 B.P.), conditions typified by greater effective moisture appear to have persisted until approximately 3,000 years ago. An episode of aridity exceeding that of the present may have occurred about 2500 B.P., but there is evidence for increased effective moisture again between approximately 2000 and 1400 years B.P. (Spaulding 1991, 1995).

In addition to diagnostic projectile points, Gypsum Period sites include leaf-shaped points, rectangular-based knives, flake scrapers, T shaped drills and, occasionally, large scraper planes, choppers, and hammerstones (Warren 1984:416). Manos and milling stones are also common. A technological innovation introduced during this period was the mortar and pestle, used for processing acorns and hard seeds, such as those derived from the hollyleaf cherry and mesquite pod. This correlates with a warming and drying trend that began around 2100 B.P., which appears to have resulted in resource intensification. In addition, the frequencies of grinding tools show increasing importance of plant foods throughout the Late Archaic, with a substantially greater emphasis after 2000 B.P. (Goldberg 2001). Other artifacts include arrow shaft smoothers, incised slate and sandstone tablets and pendants, bone awls, Olivella shell beads, and Haliotis beads and ornaments. A wide range of perishable items dating to this period was recovered from Newberry Cave, including atlatl hooks, dart shafts and foreshafts, sandals and S twist cordage, tortoise-shell bowls, and split-twig animal figurines. The presence of both Haliotis and Olivella shell beads and ornaments and split-twig animal figurines indicates that the California desert occupants were in contact with populations from the southern California coast, as well as the southern Great Basin (e.g., Arizona, Utah, and Nevada).

Technologically, the artifact assemblage of this period is similar to that of the preceding Pinto Period; new tools also were added either as innovations or as "borrowed" cultural items. Included are the mortar and pestle, used for processing hard seeds (e.g., mesquite pods), and the bow and arrow, as evidenced by the presence of Rose Spring projectile points late in this period. Ritual activities became important, as evidenced by split-twig figurines (likely originating from northern Arizona) and petroglyphs depicting hunting scenes. Finally, increased contact with neighboring groups likely provided the desert occupants important storable foodstuffs during less productive seasons or years, in exchange for valuable lithic materials such as obsidian, chalcedonies, and cherts. The increased carrying capacity and intensification of resources suggests higher populations in the desert with a greater ability to adapt to arid conditions (Warren 1984:420).

2.2.4 Saratoga Springs Period (ca. 1500–750 B.P.)

Because paleoenvironmental conditions were little changed from the preceding period, cultural trends in the early portion of the Saratoga Springs Period were, in large part, a continuation of the developments begun during the end of the Late Archaic Period. However, the Medieval Warm, a period of even more persistent drought, began by 1060 B.P., and conditions became significantly warmer and drier. These climatic changes were experienced throughout the western United States (Jones et al. 1999; Kennett and Kennett 2000), although the inland areas of cismontane southern California may have been less affected than the desert interior. The Medieval Warm continued through the first 200 years of the Late Prehistoric Period until approximately 550 B.P. (Spaulding 2001).

Firm evidence of Saratoga Springs Period occupation was documented at seven site components within the ESRP study area, while three other sites exhibit evidence of ephemeral use at this time. Six other localities within the ESRP study area yielded either obsidian with hydration bands suggesting Saratoga Springs age or Saratoga Springs projectile points (a large triangular form associated with use of the bow and arrow which began to appear in the ESRP study area at this time) but without evidence of sustained site use during this period. The focal shift of

prehistoric activity from alluvial fan margins to mountain-front benches adjacent to permanent water sources, which was initiated during the Late Archaic, is also evidenced in the Saratoga Springs site locations (Goldberg 2001).

Within the ESRP study area, the Saratoga Springs Period is seemingly marked by a reduction in the number of refuse deposits and, to a slightly lesser extent, hearths. Interestingly, when accounting for sample size, the frequency of artifact and toolstone caches was more than doubled during the Saratoga Springs Period from the preceding Late Archaic, while the frequency of human remains reached the highest point of any time in the archaeological record. Midden-altered sediments also appear for the first time during this period (Horne 2001).

However, it is of interest that most Saratoga Springs components identified within the ESRP study area actually date to the Medieval Warm Interval; only one component did not. When components dating to the Medieval Warm segment of the Saratoga Springs Period are segregated and combined with Medieval Warm components from the Late Prehistoric Period, it reveals that the frequency of refuse deposits and artifact and toolstone caches during the Medieval Warm is slightly higher than during the Late Archaic and much higher than during the latter portion of the Late Prehistoric Period. The frequency of human remains (all of which are unburned) during the Medieval Warm is also much higher than during the Late Archaic and Protohistoric Period; no human remains were found in components of the Late Prehistoric Period after the Medieval Warm Interval (Horne 2001).

During the ESRP studies, it was anticipated that intensive use of the inland areas of cismontane southern California during the Medieval Warm may have been curtailed altogether owing to inhospitable climate and concomitant decline in water and food sources. However, while land-use and procurement strategies experienced profound changes at this time, the response to deteriorating conditions was not abandonment of the inland areas, but rather intensification. Apparently, climatic conditions of warming and drying that may have begun ca. 2100 B.P., toward the end of the Late Archaic, had already triggered an intensification process that established productive strategies for dealing with resource stress. With the onset of the Medieval Warm, those strategies were further refined and intensified (Goldberg 2001).

Not only did the data indicate that the ESRP study area was used on at least a semi-permanent basis during the Medieval Warm Interval, but that residential bases show evidence (e.g., refuse deposits, midden development) that activities intensified at those settlements. People were also intentionally caching toolstone and ground stone tools, suggesting that they anticipated returning to the same locations. Characteristics of the ESRP ground stone assemblages from the Medieval Warm demonstrate that plant foods were more important than in any other period; plant processing intensified and acorns apparently became an important staple (Klink 2001a). The faunal assemblages also show that resource stress was accommodated with similar strategies by intensifying the use of lagomorphs and by further expanding diet breadth, adding animals (i.e. medium-sized carnivores) to the diet that were rarely consumed during other periods (McKim 2001). The most abundant evidence of trade also occurs in the Medieval Warm components identified at the ESRP, suggesting that this was another mechanism for dealing with resource stress (Goldberg 2001).

However, two factors identified during the ESRP studies indicate that these adaption strategies may not have been completely successful in dealing with the resource stress brought about by the Medieval Warm. First, the indices which differentiate degrees between planned and actual mobility indicate that occupations were considerably shorter than had been anticipated during the Saratoga Springs Period. Substantially long-term occupation at any given location may have been difficult given the presumably low levels of environmental productivity at this time. This suggests that not only were conditions harsh, they may also have been unpredictable. This may account for a larger number of residential locations than had been anticipated, a pattern in response to arid conditions that has also been identified on the central California coast (Lebow 2000). Second, while the burial population discovered throughout the ESRP study area was surprisingly small, the relative proportion of those from the Medieval Warm Interval is higher than any other time period (Horne 2001).

Throughout much of the California desert regions to the east, the Saratoga Springs Period saw essentially a continuation of the Gypsum Period subsistence adaptation. Unlike the preceding period, however, the Saratoga Springs Period is marked by strong regional cultural developments, especially in the southern California desert regions, which were heavily influenced by the Hakataya (Patayan) culture of the lower Colorado River area (Warren 1984:421–422). Specifically, turquoise mining and long distance trade networks appear to have attracted both the Anasazi and Hakataya peoples into the California deserts from the east and southeast, respectively, as evidenced by the introduction of Buff and Brown Ware pottery and Cottonwood and Desert Side-notched projectile points. The initial date for the first Hakataya influence on the southern Mojave Desert remains unknown; however, it does appear that by about 1000 to 1100 B.P. the Mojave Sink was heavily influenced, if not occupied by, lower Colorado River peoples.

Lake Cahuilla is believed to have refilled the Coachella Valley around 1450 B.P., and was the focus of cultural activities such as exploitation of fish, water fowl, and other lacustrine resources during this period. Desert people, speaking Shoshonean languages, may have moved into southern California at this time; the so-called "Shoshonean Intrusion." Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1200 B.P., and started to diffuse across the California deserts by about 1100 B.P. (Moratto 1984:425). Associated with the diffusion of this pottery were Desert Side-notched and Cottonwood Triangular arrow projectile points dating to about 800 to 850 B.P., suggesting a continued spread of Hakataya influences.

However, about 1060 B.P., environmental conditions became notably warmer and drier. This period of intense drought, the Medieval Warm, extended throughout the Southwest, and led to the withdrawal of Native American populations from marginal desert areas to more reliable, drought-resistant water sources such as the Colorado River and Lake Cahuilla, the episodic presence of which was not climatically controlled but dependent upon natural discharges from the Colorado River, and which experienced two, if not three, high stands during the Medieval Warm Interval (Waters 1983).

Along the southern California coastal regions, reliance on the bow and arrow for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of the tradition denoted as the "Late Prehistoric Horizon" by Wallace (1955) and the "Shoshonean Tradition" by Warren (1968), dating from about 1500 B.P. to the time of Spanish settlement (approximately A.D.

1769). Late prehistoric coastal sites are numerous. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs, as well as generous use of asphaltum and the development of extensive trade networks, are also characteristic of this period.

In the Santa Barbara coastal region, the Late Prehistoric Horizon appears to represent increases in population size, economic complexity, social complexity, and the appearance of social ranking. King (1990) posits that the mortuary practices of the Intermediate and Late Horizons throughout Chumash territories evince social ranking and that beads were used to confer status. Similarly, craft specialization on the northern Channel Islands has been linked to expanding economic capacities and emerging social ranking during the Late Period (Arnold 1987). Although the motivating forces for such trends have yet to be identified with certainty, some researchers have suggested that economies controlled by social elites spurred increasing economic productivity and resultant population growth (Clewlow et al. 1978; King 1990). More recently, archaeologists have linked past changes in subsistence, population, exchange, health, and violence to periods of drought and resource stress that occurred during the Medieval Warm Interval (Arnold 1992a, 1992b; Arnold et al. 1997; Jones et al. 1999; Larson 1987; Moratto et al. 1978).

2.2.5 Late Prehistoric Period (ca. 750–410 B.P.)

The Medieval Warm extended into the Late Prehistoric Period, ending about 550 B.P. The cultural trends and patterns of land use that characterized the Medieval Warm Interval, including that portion which extends into the earlier part of the Late Prehistoric Period, were discussed above. At the end of the Medieval Warm, however, and lasting throughout the ensuing Protohistoric Period (410–150 B.P.), a period of cooler temperatures and greater precipitation ushered in the Little Ice Age during which time ecosystem productivity greatly increased along with the availability and predictability of water (Spaulding 2001).

Also during this period, Lake Cahuilla began to recede (Waters 1983), and the large Patayan populations occupying its shores began moving eastward to the Colorado River basin or westward into areas such as Anza Borrego, Coyote Canyon, the Upper Coachella Valley, the Little San Bernardino Mountains, and the San Jacinto Plain (Wilke 1976: 172–183). The desiccation of Lake Cahuilla that occurred approximately 370 B.P. (A.D. 1580) resulted in a population shift away from the lakebed into the Peninsular Ranges and inland valleys to the west, and the Colorado River regions to the east.

With the return of more mesic conditions after approximately 550 B.P., resulting in less resource stress, the ESRP studies show that people returned to a less intensive, semi-sedentary land-use strategy similar to that identified for the Late Archaic Period. Within the ESRP study area, evidence of intensive occupation dating to the Late Prehistoric Period occurs at five residential sites comprising 16 separate components; all of these coincide with sites that were occupied during earlier periods, and all are situated on elevated bedrock benches near active springs and overlook the valley floor (Goldberg 2001).

By segregating those components dating to the Medieval Warm Interval from other Late Prehistoric components, the differences between land-use strategies for these periods can be demonstrated. The ESRP studies show that after the Medieval Warm Interval there was a quite unexpected reduction in the number and frequency of refuse deposits, as well as fire-altered rock weight and midden development. The number and frequency of artifact and toolstone caches were also reduced, while hearth features were slightly more common. Rock art also first appeared in association with Late Prehistoric components which post-date the Medieval Warm Interval. The decrease in the number of artifact and toolstone caches and the first appearance of rock art during this period suggests that residential sites may have been occupied year-round (Horne 2001).

Mortars and pestles and other grinding tools also declined in importance after the Medieval Warm in the ESRP site components, suggesting that the intensive procurement and processing of acorns and other plant foods was no longer as critical as previously; this pattern is further supported by a decline in the effort expended in shaping grinding tools (Klink 2001a). A reduction in emphasis on plant foods, and especially acorns, which require intensive preparation, likely accounts for the reduction in refuse deposits, fire-altered rock weights, and midden development at the end of the Late Prehistoric. It is possible that the portable milling toolkit was supplemented substantially by bedrock milling features which are ubiquitous throughout the region; however, since bedrock features cannot be dated, they cannot be assigned to any particular time period(s). Percentages of projectile points also increased somewhat after the Medieval Warm (Cottonwood Triangular points began to appear in inland assemblages at this time, and Obsidian Butte obsidian became much more common), suggesting increased focus on large mammals, but the lower ratio of late-stage bifaces indicates that hunting methods returned to random-encounter strategies, rather than the logistical forays of the preceding period (Klink 2001b). Of particular note, faunal assemblages produced an anomalously high lagomorph index after the Medieval Warm, suggesting a very wet climatic regime with dense undergrowth well suited to cottontails (McKim 2001). Finally, the percentage of nonutilitarian artifacts declined considerably, suggesting that trade was no longer critical for assuring food supplies (Klink 2001c).

2.2.6 Protohistoric Period (ca. 410–180 B.P.)

The ameliorated, productive conditions of the Little Ice Age continued throughout the Protohistoric Period. Generally speaking, sedentism intensified during the Protohistoric Period, with small, but apparently fully sedentary villages forming. Increased hunting efficiency (through the use of the bow and arrow) and widespread exploitation of acorns and other hard nuts and berries (indicated by the abundance of mortars and pestles) provided reliable and storable food resources. This, in turn, promoted greater sedentism. Related to this increase in resource utilization and sedentism are sites with deeper middens, suggesting central-based wandering or permanent habitation. These would have been the villages, or *rancherias*, noted by the early non-native explorers (True 1966, 1970).

Within the ESRP study region, the most striking change in material cultural in this period was the local manufacture of ceramic vessels and ceramic smoking pipes. Although pottery was known in the Colorado Desert as long ago as 800 B.P., ceramic technology in the general region appears to date to around 350 B.P. Also during this interval, abundant amounts of obsidian were

imported into the region from the Obsidian Butte source which was exposed by the dessication of Lake Cahuilla. In addition, Cottonwood Triangular points were supplemented by Desert Side-notched points during this period. Late in this period, some European trade goods (i.e., glass trade beads) were added to the previous cultural assemblages (Meighan 1954).

Based on work in the San Luis Rey River Basin in northern San Diego County, Meighan (1954), True (1970), and True et al. (1974, 1991) have defined two Late Prehistoric/Protohistoric Period complexes that are worthy of mention. The "San Luis Rey I Complex" existed from approximately 600 to 250 B.P., and is typified by grinding implements, small (Cottonwood) triangular projectile points with concave bases, stone pendants, Olivella shell beads, quartz crystals, and bone tools. The "San Luis Rey II Complex," lasting from about 250 to 150 B.P., is very similar, but with the addition of ceramic vessels (including cremation urns), red and black pictographs, glass beads, metal knives, and steatite arrow straighteners. True et al. (1974) believe that the San Luis Rey complexes developed out of the earlier La Jolla/Pauma cultural substratum, and are the prehistoric antecedents to the historically known Luiseño Indians.

The Hakataya influence in coastal and inland southern California regions appears to have diminished during the late Protohistoric Period when the extensive trade networks along the Mojave River and in Antelope Valley appear to have broken down, and large village sites were abandoned (Warren 1984:427). Warren (1984:428) suggests that the apparent disruption in trade networks may have been caused by the movement of the Colorado River basin Chemehuevi populations southward across the trade routes during late Protohistoric Period.

Within the ESRP study area, all five village clusters located on elevated bedrock surfaces near active springs and overlooking the valley floor that were occupied during the Late Prehistoric saw continued occupation in the Protohistoric Period. Most archaeological data from the ESRP Protohistoric site components indicate that a fully sedentary land-use strategy was adopted during this period. Given the spatial coincidence of the Protohistoric villages with residential sites of the Late Prehistoric Period, this sedentism appears to have been a further intensification of patterns established in the earlier period. At that time, resource stress did not appear to have been an issue; resource niche widths were expanded, and intensive resource processing that had been required during the Medieval Warm Interval appeared not to have been necessary. However, even though the climatic conditions of the Little Ice Age afforded a very productive environment during both the Late Prehistoric and Protohistoric periods, land-use strategies intensified during the later period. The use of plant food increased, as did the intensity of the processing effort. The Protohistoric Period exhibited the highest ranks for fire-altered rock and midden development, as well as rock ring foundations for brush dwellings, storage facilities, and ceremonial areas with rock art and rock enclosures; overall, there was a fluorescence of feature types and numbers at this time (Horne 2001). The faunal data for this period indicate a decrease in faunal diversity, and signify a reduction in diet breadth as well as greater intensification (McKim 2001).

The intensification in land use during the Protohistoric Period seen in the ESRP assemblages mirrors changes that occurred at the end of the Late Archaic when it is hypothesized that the collecting strategy evolved from rest-rotation to semi-sedentary. Climatic degradation causing resource stress beginning about 2100 B.P. is thought to have triggered that shift. If the environment during the Protohistoric Period was just as productive as during the earlier portion

of the Little Ice Age (Late Prehistoric Period), what then accounts for land-use intensification at this time? Apparently resources were stressed again, but not by deteriorating productivity of the environment. Rather, population growth probably led to competition for food, and possibly water and fuel resources. While preceding periods of stress could have been relieved by expansion of territory and diet breadth, increasing populations would have precluded the opportunity for territory expansion. Therefore, it is hypothesized that the shift to a fully sedentary strategy was brought about by population stress, which itself was initiated during the Late Prehistoric Period when the environment was productive and populations were very successful at exploiting that productivity (Goldberg 2001).

Other archaeological patterns exhibited by the ESRP Protohistoric components were likely a result of sedentism and protection of territories. As it is today, logistical mobility would have become essential for provisioning fully sedentary communities. With lower temperatures during the Little Ice Age but no source of fuel wood in or near the ESRP study area, procurement of fuel may have become an increasingly important element of logistical provisioning. Although there was a fluorescence of feature types and numbers at the ESRP sites dating to the Protohistoric Period, the number of artifact and toolstone caches reached an all-time low; toolstone and artifact caches would no longer have been required because there were year-round occupants at residential bases. Due to increased territoriality, resource intensification would have been required because territorial and resource niche-width expansion was no longer viable. Likewise, along with increasing territorial circumscription would have come the inevitable fact that residential bases were occupied longer than the inhabitants had originally anticipated; moving the residential base may no longer have been an option. As well, trade and ceremonial gatherings with other groups would have helped maintain social relationships and ensure food resources. Finally, sedentism and the need to protect critical resources from competitors may have eventually led to conflict. Protohistoric patterns of raw material procurement indicate that desert materials (obsidian and chert) gained prominence, while other relatively closer sources of exotic raw materials from the west (basalt, andesite, rhyolite, metavolcanic rock, and Piedra de Lumbre “chert”) were little used, suggesting that territorial boundaries, at least to the west, had become established. While there was no direct evidence of physical conflict at any of the ESRP sites, the locations of villages on elevated bedrock surfaces overlooking the valley may have been designed to afford views of intruders; an increase in projectile points may reflect a need for defensive weapons (Goldberg et al. 2001).

2.3 ETHNOGRAPHIC SETTING

Ethnographically, the city of Beaumont lies within the traditional territory of the Pass (or Wanakik) Cahuilla. A wealth of information exists regarding traditional and historic Cahuilla society and culture (Bean 1978; Bean and Toenjes 2011). The Cahuilla language, divided into Desert, Pass, and Mountain dialects, has been assigned to the Cupan subfamily of the Takic branch of the Uto-Aztecan linguistic family. Territory traditionally claimed by the Cahuilla was topographically complex, including mountain ranges, passes, canyons, valleys, and desert. Bean (1978:375) described it as, “…from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of the Colorado Desert west of Orocopia Mountain to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west.”

The Cahuilla in pre-contact times had nonpolitical, nonterritorial patrimoieties that governed marriage patterns, as well as patrilineal clans and lineages. The Cahuilla words for these moieties mean “coyote” and “wildcat.” The Cahuilla had “political-ritual-corporate units (clans) composed of 3 to 10 lineages, dialectically different, named, claiming a common genitor, with one lineage recognized as the founding one” (Bean 1978:580). Clans owned a large territory in which each lineage owned a village site with specific resource areas. Clan lineages cooperated in defense, in large communal subsistence activities, and in performing rituals. Settlements, occupied by one or more lineages, could be politically autonomous or allied with several villages under one chief. The hereditary chiefs had religious, economic, and military power and were role models for their people. They were aided in their duties by one or more assistants. The chiefs and their families, along with the very wealthy, were the elites of the society.

The Cahuilla were, for the most part, hunting, collecting, harvesting, and protoagricultural peoples. Clans were apt to own land in the valley, foothill, and mountain areas, providing them with the resources of many different ecological niches. As in most of California, acorns were a major staple, but the roots, leaves, seeds, and fruit of many other plants also were used. Fish, birds, insects, and large and small mammals were available. Mountain sheep, deer, and antelope were some of the large mammals hunted. When filled, Lake Cahuilla was on the Pacific Flyway for migratory birds; hence, ducks, geese, and other migratory birds would have been caught. Mountain lion, black bear, grizzly bear, deer, and wild boar also were hunted in historic times.

To gather and prepare various food resources, the Cahuilla had an extensive inventory of equipment. Bows and arrows were the most important hunting tools, but traps, nets, disguises, blinds, throwing sticks, and slings were also part of the hunting technology. For fishing; nets, traps, spears, hooks and lines, and fish poisons were used. Gathering required few tools: poles for shaking down pine nuts and acorns, cactus pickers, chia hooks, seed beaters, digging sticks, weights for digging sticks, and pry bars. Materials associated with transportation mainly were used to move food and include burden baskets, carrying nets, game bags, and saddle pads. Some food was stored in large baskets. Pottery ollas and baskets treated with asphaltum were used to store and carry water and seeds. Wood, clay, and steatite were used to make jars, bowls, and trays. Skin and woven grass were used to make bags. Food processing required hammers and anvils for cracking nuts; mortars and pestles for grinding acorns; manos and metates for grinding seeds and berries; winnowing shells and baskets; strainers; leaching baskets and bowls; knives of stone, bone, wood, and carrizo cane; bone saws; and drying racks made of wooden poles to dry fish. Basket mortars, with asphaltum or pine pitch used to attach an open-bottomed basket to a mortar, were important for food processing. The food was served in wooden and gourd dishes and cups and in basket bowls that were sometimes tarred. Wood, shell, and horn were used for spoons.

Cahuilla shelters were often made of brush, fan palm fronds, or arrowweed. In prehistoric times they were dome-shaped; later they tended to be rectangular. Near such dwellings usually stood brush-covered ramadas under which domestic chores were done. Earth-covered sweathouses for purification and curing rituals and ceremonial houses with fenced areas for ceremonial use were found in most villages. The chief’s house was the largest and was usually next to the ceremonial house. Each village also had several granaries (Bean 1978:578).

European contact with the Cahuilla was by the Juan Bautista de Anza expedition, which passed through the region in 1774. Initially, the Indians were hostile to the Europeans. Subsequently, the Europeans used sea routes to populate California because the land route had been closed by the Quechan Indians in 1781. The Cahuilla, therefore, had little direct contact with Europeans except for those baptized at missions in San Gabriel, San Luis Rey, and San Diego and, thus, integrated into the mission system. In 1819, several asistencias were established near the Cahuilla area; Cahuillas became partially involved with the Spanish and adopted some Spanish economic practices such as cattle raising, agriculture, trade, and wage labor, as well as cultural traits such as clothing styles, language, and religion. Some Cahuilla worked seasonally for the Spaniards and lived for the remainder of the year in their villages. At the time of the American invasion of California, the Cahuilla still maintained their political and economic autonomy.

2.4 HISTORICAL SETTING

This historic context focuses on the exploration, settlement, and development of the region since the Spanish period of occupation in Southern California beginning in 1769 and continuing through the American Period which began in 1848. From there, the discussion turns to a more localized historical background focused specifically on the Beaumont area. The following discussion is primarily based on Brackett (1939), Dallas (1955), Gunther (1984), Holtzclaw and Fox (2007), Rawls and Bean (1998), Robinson (1957), and Rolle (1978).

2.4.1 The Spanish Period (1769–1822)

The Historical Period in California formally began in 1769 with the Spanish occupation of Alta California and the founding of the San Diego de Alcala mission in San Diego when written records began to be compiled. The years 1769 to 1822 represent the Spanish Period in California.

In 1774, Captain Juan Bautista de Anza crossed the San Jacinto plains with a small party of soldiers and servants. Anza's expeditionary force crossed the Cahuilla Valley, skirted the Santa Rosa Mountains, made their way up through Coyote Canyon, descended into the San Jacinto Valley via Bautista Creek, and trekked northwest across the San Jacinto Valley into Moreno Valley. From there, the expedition passed through the Riverside area and crossed the Santa Ana River near present-day Jurupa, then continued northwest to reach the mission at San Gabriel.

Riverside County lacked a mission proper but remained connected to the California presidio and mission system through Franciscan outposts known as ranchos and *asistencias*. The Riverside area was considered to be a part of the San Diego District, a military designation associated with the San Diego presidio; most of the territory fell under the authority of Mission San Luis Rey. Founded in 1798, Mission San Luis Rey was the eighteenth of California's 21 missions. During much of the Spanish Period, European settlement in Riverside County was slow and sporadic. By the end of the Spanish Period, few Europeans had settled permanently within the region.

2.4.2 Mexican Rancho Period (1822–1848)

In 1821, after 10 years of intermittent rebellion and warfare, Mexico and the territory of California won independence from Spain. On December 15 of that same year, the Mexican *Cortes* (the legislative body of the Mexican government) ended the older regime's strict isolationist policies that were designed to protect the traditional Spanish monopoly on trade and

decreed that California ports (namely San Diego and Monterey) be open to foreign merchants (Dallas 1955:14).

Following the Secularization Act of 1833, which called for the immediate privatization of Franciscan lands, the Mexican government secularized all of the California missions. During the two-year period of 1834 to 1836, this radical process quickly and effectively reduced the missions to parish churches. Although the original secularization schemes called for redistribution of mission lands to those Native Americans who were responsible for the physical construction of the mission empire, the vast mission land and livestock holdings were redistributed by the Mexican government into several hundred land grants privately owned by Mexican citizens (Langum 1987:15–18). These landowners subsequently released their neophyte Native American "workers" to fend for themselves. During the resultant Mexican Rancho Period (1834–1848), livestock and horticulture dominated the economics of Southern California. Ranchos were predominately devoted to the cattle industry and large tracts of land were used for grazing.

2.4.3 American Period (1848–Present)

With the signing of the Treaty of Guadalupe Hidalgo in 1848, which ended the Mexican-American War, California entered into the American Period and, in 1850, became a recognized state in the United States. During the late 1840s, there began the decline of old California's cattle ranching industry, which for over half a century represented the currency and staple of the rancho system. By the 1850s to 1860s, cattle ranching in the general region had greatly declined, and ranchos changed ownership regularly. Through the years, settlement continued to develop across the inland valleys of what would eventually become western Riverside County. With the influx of new settlers and decline of the cattle industry, some of the larger ranchos were subsequently subdivided into smaller parcels. In 1852, San Diego organized into a county; in 1853, San Bernardino followed suit. Riverside County would be formed in 1893, carved out of portions of San Bernardino and San Diego counties.

The completion of the Southern Pacific (SP) Railway's transcontinental railroad in 1869 opened California to agricultural settlement and brought the previous era of large-scale ranching to a close. The arrival of the SP across the San Gorgonio Pass and into the San Bernardino Valley resulted in a dramatic influx of new settlers into what is now western Riverside County. The Riverside Colony was founded in 1870, and agricultural lands in the region quickly began to be settled by homesteaders. During the 1880s and 1890s, similar to the phenomena occurring in the area surrounding the Riverside Colony, irrigation canals were built and the regional citrus industry took root in the fertile valleys of the surrounding region. The arrival of reliable water sources coincided with the arrival of a second transcontinental railroad; in 1882, construction of a competing rail line into Southern California was underway, financed by the Atchison, Topeka, and Santa Fe Railway Company. The line of a Santa Fe subsidiary, the California Southern, was built from San Diego to the site of Perris and on to Riverside and San Bernardino in 1882.

During the years from about 1908 through American entry into World War I in 1917, there was renewed interest in farm settlement and farming in California and elsewhere in the western U.S. This was reflected in a sharp surge in Homestead filings on remaining public lands in rural California at that time. The decade of the 1920s offered regional urban growth in southern

California that was helpful to many farmers in the region. However, it also brought sustained national declines in the prices of many agricultural commodities due to major increases in agricultural production in the U.S. and elsewhere. Turnover in land ownership during the 1930s and the eventual recovery of agricultural prices by the eve of World War II (WWII) was followed by the disruptions of the exodus of younger people into military service or leaving to work in urban areas. Water from the Colorado River Aqueduct was piped to the region beginning in the early 1940s. Alfalfa, potatoes, watermelons, and sugar beets soon after became the mainstay of farming in many parts of the region.

The post-WWII era ushered in a boom in commercial, industrial, and residential development in and near the region's urban centers, followed by the construction of several freeways linking urban areas to one another. As urban areas were spread outward by development, once-rural areas took on a more semi-rural character, dotted by small "mini-ranch" subdivisions. In more recent years, housing and urban development have spread outward from urban areas and swallowed up former agricultural land at an exponential rate, forever changing the character of the region.

2.4.4 City of Beaumont

As early as the 1850s, U.S. government surveying parties passed through the vicinity of what is now Beaumont. The location of the town of Beaumont was originally called San Gorgonia for a post office that was established on August 21, 1879, at the SP Railroad's Summit station (Gunther 1984:456). At the summit of the San Gorgonio Pass, the SP's Summit station served as a rest stop for railway travelers who had just crossed the Mojave Desert on their way to Los Angeles. The railroad station, comprising a small red building, an adjacent turn-table, a water tank and well head, and a few other buildings were all that made up the location. In 1884, George C. Egan purchased the land at Summit station from the SP and platted a 320-acre townsite named San Gorgonio (Gunther 1984:457). In November 1887, an investment company run by H.C. Sigler, bought Egan's share in the townsite and renamed the town Beaumont, after Sigler's hometown of Beaumont, Texas. The name "Beaumont" has been used extensively in place names, and is derived from the French word for "beautiful mountain." Beaumont was incorporated as a city on November 18, 1912. It was around this same time that the first cherry trees were planted in Beaumont. By the 1960s, around 40 cherry groves dotted the landscape between Beaumont and Cherry Valley, while farther to the north at Oak Glen an apple industry has been thriving since the 1890s (City of Beaumont 2013).

3
CULTURAL RESOURCE LITERATURE AND RECORDS SEARCH

Prior to the desktop cultural resource sensitivity analysis, Æ completed literature reviews and records searches at the EIC, housed at the University of California, Riverside, on April 7 and July 19, 2017. These searches included the entire Project area. The objective of the records searches was to determine whether any prehistoric or historical cultural resources have been recorded previously within the Project area to establish a baseline with which to conduct the sensitivity analysis. Additional sources consulted during the archaeological literature and records searches include the Office of Historic Preservation Archaeological Determinations of Eligibility and the Office of Historic Preservation Directory of Properties in the Historic Property Data File.

3.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

Results of the records searches indicate that no less than 58 investigations have been conducted previously within the Project area (Table 3-1).

Table 3-1
Previous Cultural Studies within the Project Area

EIC Document #	Date	Author(s)	Title
RI-00039	1972	Mary A. Brown and Martha J. Solig	Development of Highland Springs: Expected Impact on Archaeological Resources.
RI-00040	1982	David M. Van Horn	Cultural Resources Assessment: Tentative Tract 14209 near Highland Springs in Unincorporated Riverside County, California
RI-00161	1975	Roberta S. Greenwood	Paleontological, Archaeological, Historical, and Cultural Resources, West Coast-Midwest Pipeline Project, Long Beach to Colorado River
RI-00761	1980	Chrisina Brewer	An Archaeological Survey of Tentative Tract 15087, County of Riverside, California
RI-01237	1980	Robert J. Wlodarski and John M. Foster	Cultural Resource Overview for the Devers Substation to Serrano Substation Transmission Route Alternatives Corridor Right-of-Way
RI-01400	1982	Salpas, Jean A.	An Archaeological Assessment of 23.34 Acres of Land Near Sun City
RI-01771	1986	Lerch, Michael and R.E. Reynolds	Archaeological and Paleontological Survey of Futura Valley Farms Including Tentative Tract 21384, Beaumont Area, Riverside County, California
RI-01830	1984	Sutton, Mark Q.	An Archaeological Assessment of Parcel 18132, Beaumont Area of Riverside County, California
RI-01900	1983	Scientific Resource Surveys, Inc.	Archaeological Survey Report on An Approximate 900 Acre Portion of Portero Ranch, Located in the Banning/Beaumont Area of the County of Riverside
RI-02203	1987	Drover, C.E.	An Archaeological Assessment of The Hovchild Property, Riverside County, California
RI-02943	1991	Goldberg, S.K., et al.	Technical Report for Three Siting Alternatives, Eastside Reservoir Study: Cultural Resources

Table 3-1
Previous Cultural Studies within the Project Area

EIC Document #	Date	Author(s)	Title
RI-03002	1990	Drover, Christopher E.	Environmental Impact Evaluation: An Archaeological Assessment of Seneca Springs Project, Riverside County Beaumont, California.
RI-03097	1981	Wirth Associates, Inc.	Devers-Serrano-Villa Park Transmission System Cultural Resources Technical Report
RI-03101	1992	Powers, David W., James H. Cleland, and Rebecca M. Apple	Historic Study Report, State Route 79 Widening Project, Gilman Springs Road -First Street (Lamb Canyon), 08-Riv-79, Pm 33.9/40.1
RI-03102	1992	Wahoff, Tanya	Archaeological Survey Report, State Route 79 Widening Project, Gilman Springs Road - First Street (Lamb Canyon), 08-Riv-79, Pm 33.9/40.1, 08214-465100
RI-03180	1991	Drover, Christopher E.	A Cultural Resource Assessment: Lamb Canyon Landfill Project Near Beaumont, Riverside County, California
RI-03326	1991	Drover, Christopher	Environmental Impact Evaluation: An Archaeological Assessment of Lockheed Proving Ground Project, Riverside County, Beaumont, California
RI-03421	1989	Brown, Joan and Juanita Shinn	Cultural Resources Literature Review for the 1,162 Acre Deutsch Specific Plan Project, Located in the City of Beaumont, Riverside County, California
RI-03618	1993	Everson, Dicken And Steve Moffitt	Cultural Resources Assessment Archaeological Survey of the Beaumont Heights Specific Plan Project Located in the Beaumont Area Of Riverside County
RI-04162	1999	Mckenna, Jeanette A.	A Phase I Cultural Resources Investigation of the Oak Valley Estates Project Area, Beaumont, Riverside County, California
RI-04163	1999	Mckenna, Jeanette A.	A Cultural Resources Overview for The Oak Valley Estates Project Area, Located in the City Of Beaumont, Riverside County, California
RI-04421	1990	Lsa Associates, Inc.	Appendix B-Cultural Resources. In: Measure A Program Project Alternatives Analysis-Environmental Component, Technical Appendix Volume I
RI-04840	2002	Demcak, Carol R.	Report of Phase I Archaeological Assessment of a 23-Acre Parcel in Beaumont, Riverside County
RI-04841	2002	Demcak, Carol R.	Addendum: Report of Phase I Archaeological Assessment of s 23-Acre Parcel in Beaumont, Riverside County
RI-05088	2005	Cultural Systems Research, Inc.	Ethnographic Overview Inland Feeder Pipeline Project
RI-05136	2003	Archer, Gavin H., And Marian L. Kearin	Cultural Resource Inventory and Paleontological Assessment Hovchild Property, City of Beaumont, County of Riverside, California
RI-05250	2000	White, Laurie	Letter Report: Records Search Results for Sprint PCS Facility Rv33Xc269A (May Valley), Mountain Center, Riverside County, CA
RI-06230	2005	Bowden-Renna, Cheryl	Cultural Resources Survey for the Lockheed/Laborde Canyon Off-Highway Vehicle (OHV) Park, Riverside County, California
RI-06256	2006	Ahmet, Koral And Evelyn Chandler	Cultural Resources Survey of a 29-Acre Parcel, Located West of Manzanita Road Near the City of Beaumont, Riverside County, California
RI-06458	2004	Tang, Bai, Michael	Historical/Archaeological Resources Survey Report, The

Table 3-1
Previous Cultural Studies within the Project Area

EIC Document #	Date	Author(s)	Title
		Hogan, Deirdre Encarnacion, And John J. Eddy	Shops at the Noble Creek, in the City of Beaumont, Riverside County, California
RI-06681	2006	Gardner, Jill K., Patrick Stanton, and Deborah Cogan	Archaeological Survey of Nine Pole Locations on the Rondell 12 kV Circuit, Maraschino Substation, Riverside County, California (Wo No. 6031-5333 6-5320)
RI-06955	2006	Ahmet, Koral and Evelyn Chandler	Cultural Resource Inventory of 270 Acres at Lockheed Martin, Corporation, Beaumont Site 1 (Potrero Creek), Riverside County, California.
RI-07052	2006	McKenna et al.	A Cultural Resources Investigation, of the Proposed San Gorgonio Village, Project Area, Approximately 23 Acres, of Land in the City of Beaumont, Riverside County, California.
RI-07054	2007	Hogan, Michael and Bai Tang	Cultural Resource Reconnaissance and Sensitivity Assessment: Beaumont-Cherry Valley Water District Sewer System, in the Community of Cherry Valley, Riverside County, California.
RI-07364	2007	Crews, Rachel G. and Jay K. Sander	Archaeological and Paleontological Monitoring of a 29.7-Acre Project Area at the Northwest Corner of the First Street and Commerce Way Beaumont, Riverside County, California
RI-07412	2007	Ahmet, Koral and Evelyn Chandler	Cultural Resources Inventory of Several Parcels Within Former Operational Areas at Lockheed Martin Corporation, Beaumont Site 1 (Potrero Creek), Riverside County, California
RI-07439	2007	Eddy, John	Due-Diligence Historical / Archaeological Background Review Proposed KAEH-FM Noble Creek Transmitter Site, City of Beaumont, Riverside County, California, CRM TECH Contract No. 2140
RI-07450	2007	Bonner, H. Wayne and Aislin-Kay, Marnie	Cultural Resource Records Search and Site Visit Results for T-Mobile Candidate IE04672B (Morse Chiropractic), 10935 Limonite Avenue, Mira Loma, Riverside County, California
RI-07457	2007	Dalu, Chris	A Class III Cultural Resources Inventory Survey of 27 Off-Highway Vehicle Restoration Areas, EA CA660-08-05, Chuckwalla Valley, Riverside County, California
RI-07490	2007	Tang, Bai "Tom" and Michael Hogan	Historical/Archaeological Resources Survey Report: The Windflower Tristone Project Tentative Tract Map No. 35184
RI-07711	2007	Lawson, Natalie, Joseph E. Baumann, and Shannon Carmack	Cultural Resources Assessment Improvements to the Beaumont Sports Park Project. City of Beaumont, Riverside County, California
RI-07713	2008	Sanka, Jennifer M.	Phase I Cultural Resources Assessment And Paleontological Records Review Brookside South Streambed Recharge Project Beaumont, Riverside County, California
RI-08027	2009	Earth Touch Inc	Beaumont Health Center
RI-08409	2004	William T. Eckhardt, Kristen E. Walker, and Richard L. Carrico	Draft Cultural Resources Inventory of the Proposed Vista to Devers Transmission Line, Riverside and San Bernardino Counties, California.
RI-08574	2009	William T. Eckhardt, Stacie Wilson, Carol Serr, and Karolina Chmiel	Final Cultural Resources Inventory of the Proposed SCE Devers to Valley Substation Project Riverside County California: Volume I
RI-08669	2011	Wayne H. Bonner,	Letter Report: Cultural Resources Records Search and Site

Table 3-1
Previous Cultural Studies within the Project Area

EIC Document #	Date	Author(s)	Title
		Sarah A. Williams, and Kathleen A. Crawford	Visit Results for T-Mobile USA Candidates IE24366-A
RI-08975	2011	James T. Daniels, Jr.	Additional Intensive Survey for SCE DPV2; Three Additional Helicopter Landing Zones and Two Alternate Construction Yards, Riverside County California
RI-08981	2013	Matthew M. DeCarlo, Scott C. Justus, and William T. Eckhardt	Summary Class III Cultural Resource Inventory, Proposed Southern California Edison Devers-Palo Verde 2 500kV Transmission Line Project, Riverside County, California
RI-09084	2008	Sarah A. Siren, Matthew J. Wetherbee, Lawrence G. Barnes, and Gavin H. Archer	Report of Archaeological and Paleontological Mitigation Program, Four Season at Beaumont, Phases B and C, Beaumont, California
RI-09178	2010	Michael H. Dice and Kenneth J. Lord	Phase I Cultural Resource Assessment of The Lamb Canyon Landfill Integrated Project Riverside County, California
RI-09183	2014	Carrie D. Wills, Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04451A (CM451 Beaumont Civic Center), 550 East 6th Street, Beaumont, Riverside County, California
RI-09309	2014	David Brunzell	Cultural Resources Assessment of the Hertz Project, Beaumont, Riverside County, California (BCR Consulting Project No. TRF1401)
RI-09319	2014	Sarah A. Williams, Carrie D. Wills, and Kathleen A Crawford	Cultural Resources Search and Site Visit Results for T-Mobile West, LLC Candidate IE0451A (CM 451 Beaumont Civic Center), 550 East 6th Street, Beaumont, Riverside County, California.
RI-09457	2015	Phil Fulton	Cultural Resource Assessment Class III Inventory Verizon Wireless Services Bolo Facility City of Beaumont, County of Riverside, California
RI-09460	2015	Bai 'Tom' Tang and Michael Hogan	Phase I Historical/Archaeological Resource Survey Seasons at Beaumont Project City of Beaumont Riverside, California
RI-09612	2014	David Brunzell	Cultural Resources Assessment of the Hertz Project, Beaumont, Riverside County, California (BCR Consulting Project No. TRF 1401)
RI-09616	2014	Don C. Perez, M.A., RPA	Cultural Resources Survey: Oak Valley / Ensite #18231 (273990) Beaumont Avenue, Beaumont, Riverside County, California 92223. SW 1/4 NW 1/4 S3 T3S R1W. EBI Project No. 61142405
RI-09686	2014	Robert Cunningham and Evelyn Chandler	Cultural Resources Inventory of the Remedial Action Plan (RAP) Study Areas at Lockheed Martin Corporation's Beaumont Site 2 (Laborde Canyon), Riverside County, California

3.2 CULTURAL RESOURCES REPORTED WITHIN THE PROJECT AREA

The cultural resource records searches also indicated that 293 cultural resources have been identified previously within the Project area (see table in Appendix B). The majority of these (n = 201) are built-environment resources consisting in large part of single family residences but also including commercial properties, civic buildings, transmission lines, flood control

structures, roadways, and at least one trail. The remaining resources are composed of 52 prehistoric archaeological sites including lithic and ceramic scatters, milling features, rock art, and isolated flakes and ground stone artifacts; 35 historical archaeological sites including refuse scatters, structural remains, wells, a rocket test site, and isolated glass fragments and other refuse; and 5 sites containing both historical and prehistoric artifacts including lithic and ceramic scatters with historical refuse, habitation sites with rock art and historical refuse, and milling features sites with historical refuse.

A brief description of each of these resources is provided in Appendix B.

4
NATIVE AMERICAN COORDINATION

As part of the cultural resource assessment, Æ contacted the NAHC on March 10, 2017, for a review of the SLF. The purpose of the SLF search request was to determine if any known Native American cultural properties (e.g., traditional use or gathering areas, places of religious or sacred activity, etc.) are present within the Project area. The NAHC responded on April 12, 2017 indicating that Native American cultural resources were identified within the Project area and may be impacted by the Project; the NAHC suggested that the Torres-Martinez Desert Cahuilla Indians be contacted for more information regarding the cultural resources that may be impacted by the Project. In addition, the NAHC requested that 34 Native American individuals and/or organizations (including the Torres-Martinez Desert Cahuilla Indians) be contacted to elicit information regarding cultural resource issues related to the proposed Project (Appendix A). Upon review of the Native American contact list, Æ removed redundancies and narrowed the list to 22 individuals and/or organizations who were contacted by email or letter on August 29, 2017. An example of the SLF search request letter, the list of contacts, and the responses received are included in Appendix A.

Individuals/organizations contacted include:

- Patricia Garcia-Plotkin, Director of the Tribal Historic Preservation Office (THPO) for the Agua Caliente Band of Cahuilla Indians (ACBCI)
- Amanda Vance, Chairperson of the Augustine Band of Cahuilla Mission Indians
- Doug Welmas, Chairperson of the Cabazon Band of Mission Indians
- Luther Salgado, Chairperson of the Cahuilla Band of Indians
- Ralph Goff, Chairperson of the Campo Band of Mission Indians
- Michael Garcia, Vice Chairperson of the Ewiiaapaayp Tribal Office
- Erica Pinto, Chairperson of the Jamul Indian Village
- Javaughn Miller, Tribal Administrator of the La Posta Band of Mission Indians
- John Perada, Environmental Director of the Los Coyotes Band of Mission Indians
- Nick Elliott, Cultural Resources Coordinator of the Manzanita Band of Kumeyaay Nation
- Virgil Oyos, Chairperson of the Mesa Grande Band of Mission Indians
- Denisa Torres, Cultural Resources Manager of the Morongo Band of Mission Indians
- John Gomez, Environmental Coordinator for the Ramona Band of Cahuilla Mission Indians
- John Valenzuela, Chairperson of the San Fernando Band of Mission Indians

- Lee Clauss, Director CRM Department of the San Manuel Band of Mission Indians (SMBMI)
- John Flores, Environmental Coordinator of the San Pasqual Band of Mission Indians
- Steven Estrada, Chairperson of the Santa Rosa Band of Mission Indians
- Goldie Walker, Chairperson of the Serrano Nation of Mission Indians
- Joseph Ontiveros, Cultural Resource Department of the Soboba Band of Luiseño Indians
- Lisa Haws, Cultural Resources Manager for the Sycuan Band of the Kumeyaay Nation
- Michael Mirelez, Cultural Resource Coordinator for the Torres-Martinez Desert Cahuilla Indians
- Julie Hagen, Viejas Band of Kumeyaay Indians

Four responses were received after the initial scoping letters were sent out. Katie Croft, Archaeologist in the ACBCI THPO indicated that the Project area is not located within the boundaries of the ACBCI Reservation; however, it is within the Tribe's Traditional Use Area. As such, the ACBCI THPO requests copies of any cultural resource documentation (report and site records) generated in connection with this Project. William Vance, Vice Chairperson of the Augustine Band of Cahuilla Mission Indians, indicated that the Tribe is unaware of specific cultural resources that may be affected by the Project. The Tribe encourages contact with other Native American tribes and individuals within the immediate vicinity of the Project. In addition, the Tribe encourages contracting a monitor who is qualified in Native American resource identification who is able to be present full-time during the pre-construction and construction phase of the Project. Finally, the Tribe would like to be notified should any cultural resources be discovered during the development of the Project.

Jessica Mauck, Cultural Resource Analyst for the SMBMI, indicated that the Project area exists within a small portion of Serrano ancestral territory and, therefore, is of interest to the SMBMI. San Timoteo Canyon and the Badlands are located within this portion of the Project. Both of these areas are rich in cultural material and important to SMBMI. Mauck also stated there are several water sources within the Badlands and further north, specifically Little San Gorgonio Creek, which could indicate moderate archaeological sensitivity. Finally, Mauck recommended contacting the Morongo Band of Mission Indians as well as the Soboba Band of Luiseno Indians, given that their reservations are very close to the Project area. Ray Teran, Resource Management for the Viejas Band of Kumeyaay Indians, stated that the Tribe determined the Project has little significance or ties to the Viejas. As such, the Tribe recommends contacting tribes in closer proximity to the Project. However, the Tribe does request to be informed of any inadvertent discoveries including cultural artifacts, cremations, or human remains.

Æ conducted follow-up telephone calls on September 26, 2017 with the Native American groups and individuals that did not respond to the initial information request. Two additional responses were received as a result of the follow-up telephone calls. Goldie Walker, Chairperson of the Serrano Nation of Mission Indians, indicated that the Project area and immediate vicinity are very sensitive for Native American cultural resources. She also indicated that she would like to

be notified at her PO Box should any Native American cultural resources be found within the Project area (see NAHC Contact List for full address). Finally, Jessica Valdez, on behalf of the Soboba Band of Mission Indians, indicated that while the Project area is located outside of the Tribe's existing reservation, the Project area does fall within the Tribe's Traditional Use Areas and is in close proximity to known sites. The Project area is within a shared use area that was used in ongoing trade between tribes and is considered to be culturally sensitive by the people of Soboba. As such, the Tribe outlines five requests including consultation with the Project proponents and lead agency, information regarding progress of the project, the Tribe to act as a consulting entity, a Native American monitor from the Soboba Cultural Resource Department to be present during any ground disturbance as well as survey and archaeological testing, and finally, request that proper procedures be taken and requests of the Tribe be honored.

A table of responses summarizing coordination with Native American groups and/or individuals contacted is presented in Appendix A.

5
CULTURAL RESOURCE SENSITIVITY STUDY

5.1 METHODS

This cultural resource sensitivity assessment compiles known cultural resource data and environmental data to model and predict the sensitivity for both buried prehistoric and surficial prehistoric and historical archaeological resources as well as historical built-environment resources. The sensitivity zones were derived through a consideration of geologic sedimentary structures, soil series maps of the general Project area, historical maps (including General Land Office [GLO] plat maps and U.S. Geologic Survey [USGS] topographic maps) and aerial images, modern aerial imagery, and the cultural resources literature and records search. As well, archaeological journals and publications on the Project area were consulted.

Based on the sensitivity for both surface and subsurface resources, cultural resource management measures are recommended for future compliance with the California Environmental Quality Act (CEQA); those are presented in Chapter 6. These management recommendations serve as a minimum level of effort and provide guidance for establishing actual level of effort once specific project areas and potential impacts are defined.

5.2 RESULTS

The most influential variables in establishing the archaeological sensitivity of the Project area involve the geomorphology of the general area as well as the location and setting of known cultural resources. These variables inform on the likelihood of finding other resources in various settings within the Project area. Each of these factors are described below, and the resultant High, Moderate, Low to Moderate, and Low sensitivity areas are illustrated on Figure 5-1.

5.2.1 Geography and Topography

The San Gorgonio Pass is an east-west oriented valley approximately 4 to 5 miles wide formed between the San Bernardino and San Jacinto Mountain ranges. The valley is filled with coarse alluvial Quaternary sediments washed out from these ranges. Current drainage systems include Noble Creek, San Gorgonio Creek, Smith Creek, and Cherry Canyon, which drain the southern front of the San Bernardino Range and flow into San Timoteo Canyon to the west. Additionally, local on-fan drainage in the eastern part of the valley drains into Potrero Canyon, cutting through the San Jacinto Range into San Jacinto Valley.

The northern portion of the Project area, in the vicinity of the town center of Beaumont, is located in a four to five-mile-wide basin between the northern foothills of the San Bernardino Range and the northernmost ridges of the San Jacinto Range. The basin is filled with coarse Pleistocene and Holocene aged sediments eroded from the local mountains. Most drainage into the basin is derived from the San Bernardino Range.

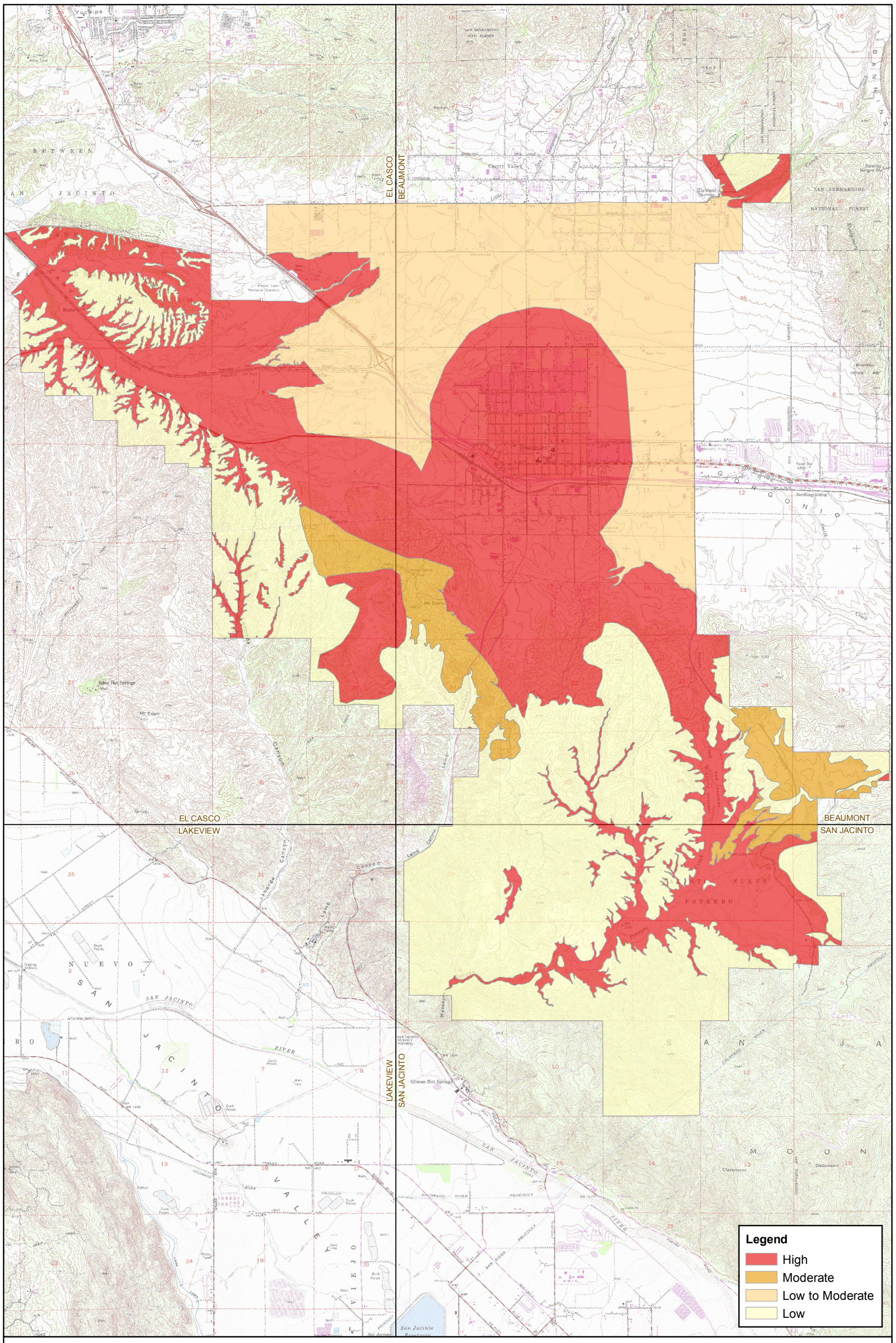

Figure 5-1 Project sensitivity map.

The southern part of the Project area, in the San Jacinto Range, is a mountainous region consisting of south to southwest trending canyons cutting through Tertiary aged sedimentary rocks and older granitic and metamorphic rocks of the San Jacinto Range. Relief ranges from several hundred feet in the north to over 1,500 feet in the south. Most canyons are narrow and V-shaped with narrow to limited flood plain development; however, a broad alluvial valley consisting of several square miles is located along Potrero Creek. Ridges are moderately steep, incised with gulches and small canyons, and where granitic or metamorphic, the surfaces are dominated by large outcrops and boulders.

Hydrology

Water was essential for the survival of prehistoric people and important during the historic period for the development of agricultural, establishment of homesteads, and early settlement. Prehistoric people in the area generally established habitation sites near reliable sources of water such as springs near the base of mountains. Early settlers in an area also utilized these water sources and established homesteads near these sites. Later, water sources were developed and water was conveyed to town sites, residences, and agricultural land. As such, water sources are sensitive for sites related to early development and settlement of an area and for water conveyance systems used to transport water. GLO plat maps and USGS topographic quadrangles were reviewed and hydrological features such as springs, seeps, cienagas (wetlands), willow thickets, and running creeks were identified as areas both prehistoric and historically sensitive.

Geology

Two geologic settings are present within the Project area, including the montane region of the San Jacinto Range and the alluvial San Gorgonio Pass area. Each area provided people of the historic and prehistoric periods access to different materials. The montane region afforded access to granites, schists, and other hard igneous and metamorphic rocks. Of particular use to prehistoric people, quartzite deposits outcrop in the southernmost part of the Project area. Limited amounts of volcanic materials also occur in small outcrops throughout the range. Tertiary deposits in the central part of the Project area, primarily in the San Timoteo Badlands, contain softer sandstone and consolidated conglomerates that originated in the San Bernardino Range. Native people may have used the materials embedded within these deposits as toolstone, though few studies of lithic sources in this area are available.

Ecotones

Ecotones are areas where two or more distinct ecosystems meet. Within the Project area, ecotones between valley grasslands and hillside chaparral can be found along the southern side of the pass and within montane valleys. Riparian, grassland, chaparral and deciduous tree and grassland ecotones are present near the base of the San Bernardino Mountains as well as in the San Jacinto Range. These areas would have provided native people access to a broad range of resources from multiple plant communities. Wild game is also attracted to these areas for the same reasons. Early historic period settlers may also establish camps and residences near ecotones until farming and roads are established in a region providing access to good hunting areas and wild forbs. One of the most sensitive ecotones for prehistoric sites is the boundary

between mountain and valley; in addition to providing access to multiple ecosystems, springs and seeps are often present at the base of mountains.

5.2.2 Records Search Data

The records search data indicate that large portions of the southern part of the Project area have been previously studied and numerous sites have been documented. In the north, smaller surveys have occurred in the pass and valley lands as well as the foothills in support of infrastructure projects. Overall survey coverage is estimated to be around 30 percent for the entire Project area and, as mentioned previously, 293 resources have been documented.

Despite the limited survey coverage of the Project area, notable concentrations of sites are visible in the data set for areas that have been surveyed. The San Jacinto Nuevo Y Potrero Landgrant, near the headwaters of Potrero Creek, contains two habitation sites, including one with rock art, several bedrock milling sites, lithic scatters, and other prehistoric sites. At least 17 sites have been recorded previously in this valley. Several historic-period archaeological sites are also present in this valley. Historic-period mining, water conveyance and storage, transportation, and settlement are common in the lower foothills and northernmost extent of San Jacinto Range along the valley margin. Within the valley, built structures associated with the town of Beaumont are very common and centralized around the old town site; however, agricultural and ranching sites, irrigation, transportation including railroad, and refuse scatters are present in a low density throughout the valley.

5.2.3 Historical Map and Aerial Photograph Review

Æ consulted historical maps and aerial photos to see what changes have occurred to the general Beaumont area in the past century. This is important for assessing the integrity of the modern surficial landscape and assessing the character of the landscape prior to modern development of the valley. Specific points of interest include migration of creek channels, evidence of down-cutting, the presence of dunes, and evidence of abandoned channels, as well as agricultural use of the Project area over time. Both aerial imagery from 1966, 1967, and 1972 (NETROnline 2017) and historical USGS and army quadrangles were consulted as part of the research. Historical maps consulted include the San Jacinto 30' USGS quadrangle (1901), Elsinore 30' USGS quadrangle (1901); the Perris 15' USGS quadrangle (1942), Banning 15' USGS quadrangle (1943), Banning 15' USGS quadrangle (1956); and the El Casco 7.5’ USGS quadrangle (1953), San Jacinto 7.5’ USGS quadrangle (1953), Beaumont 7.5’ USGS quadrangle (1955), El Casco 7.5’ USGS quadrangle (1967), Beaumont 7.5’ USGS quadrangle (1972), and San Jacinto 7.5’ USGS quadrangle (1972).

General Land Office (GLO) plat maps for the Beaumont area were also reviewed. GLO surveys, delineating townships and producing plat maps for the Public Land Survey System and Spanish Period landgrants across the western United States, were conducted in the area as early as 1856. A total of 27 GLO plat maps between 1856 and 1918 overlap portions of the Project area, with some maps containing extraordinary detail of historic period settlement, roads, hydrography, topography, and Native American settlements. These maps were reviewed and the data was incorporated into the sensitivity map (Figure 5-1).

5.3 SENSITIVITY AREAS DISCUSSION

The San Jacinto Nuevo Y Potrero Landgrant is a high sensitivity region for both prehistoric and historic-period sites. Several adobe structures and historic-period homesteads have been recorded in the area. In addition, roads have crossed the valley since prehistoric times. The valley is well watered with Potrero Creek as well as several springs. Ecotones between grasslands and mountain chaparral are present along the valley margin and outcrops of granite can be found in the mountains and in the eastern valley. Outcrops of quartzite and tertiary conglomerates may be present as well in the mountains, and when eroded, providing a supply of cobbles in valley sediments and streams for raw tool stone. Known sites in the valley include CA-RIV-239, a prehistoric rock art and habitation site, as well as other habitation sites, complex lithic scatters, and isolates, with bedrock milling features along the valley edge. GLO maps depict an Indian village within the central part of the valley.

The mouth of upper Lamb Canyon, where it meets the pass valley floor as well the northern foothills of the San Jacinto Range, are highly sensitive as well. Known sites, including foundations, water systems, and refuse scatters, have been identified in this area. Bedrock milling features, lithic scatters, and a rock shelter with prehistoric remains are also present. Roads dating back to the 1850s and prehistoric period have both been mapped in the general area. Natural features that contribute to this area's sensitivity include valley grassland and mountain grass/chaparral ecotones, riparian areas around Potrero Creek, raw lithic material within Tertiary conglomerates, and potential springs.

Much of the remainder of the mountain area is low sensitivity for all resource types. This is primarily due to the steep slopes and thick chaparral vegetation. However, it's important to note that low sensitivity does not imply that no sites will be present, rather that site density will be low. The area is sensitive for historic-period mining sites, small settlements in highland valleys, transportation, water conveyance and catchment, and ranching. Potential prehistoric sites include rock art, floral processing, and lithic procurement.

San Timeteo Canyon is highly sensitive for both prehistoric and historic resources. Several historic-period ranches have been documented in the canyon and surrounding hills; these contain multiple buildings, water systems, fences, roads, and ranching infrastructure. The canyon is the site of an old school and part of the early landgrant system, specifically an area marked as The Area Between the San Jacinto and San Gorgonio Landgrant. Known prehistoric sites include several lithic scatters and bedrock milling features. Several springs and swamps were depicted within the area on GLO maps, as well as an Indian village and cemetery a mile to the west of the Project boundary. The valley is a major corridor through the broken landscape connecting the San Bernardino Valley to San Gorgonio Pass and is the path to many historic-period transportation systems, including the Southern Pacific Railroad and San Timeteo Canyon Road. In addition, this area likely served as a prehistoric trade/migration route. The hills flanking the valley contain Tertiary deposits with the potential for providing localized lithic raw material.

In the San Gorgonio Pass, the town of Beaumont is highly sensitivity for cultural resources. There are numerous documented residential and commercial buildings of historical age, and likely many more yet to be recorded. Roads, the railroad, pipelines, utility lines, high tension power lines, and other resources of the built environment are all of historic age. Additionally,

there is a potential for buried historic-period resources, including privies, refuse dumps, foundations, and abandoned utilities. However, due to the level of construction, the area is low sensitivity for prehistoric sites.

The northern part of the valley has a low to moderate sensitivity for cultural resources. This general area is an alluvial plain consisting of coalescing fans mostly of Pleistocene and Holocene age. Prior to development, this area would have consisted of a dissected landscape grooved with small creeks, braided streams, gravel deposits near the mountains, and possibly sands and silts near the valley center. Prehistoric sites in this area would most likely be restricted to the surface or near surface. Potential prehistoric sites might include lithic procurement areas and trails; however, larger habitation sites are more likely to occur near the base of mountains north of the Project where ecotones and springs are more readily available.

6
MANAGEMENT RECOMMENDATIONS

Moderate and high sensitivity areas dominate the Project area. Development associated with the proposed General Plan Update could have the potential to disturb historical and prehistoric archaeological sites as well as historic built-environment resources. *Æ* thus recommends that a Phase I cultural resource assessment should be performed prior to any development or improvements implemented under the proposed General Plan Update. Such assessment should include a records search at the EIC, archival research, and an intensive pedestrian survey of the proposed project area, to identify any cultural resources that may be impacted.

If any cultural resources (historical or prehistoric archaeological sites or built-environment resources) are found in areas of direct impact, their CRHR eligibility should be evaluated. Potential impacts of any project on CRHR-eligible properties would have to be assessed. If adverse effects to historical resources cannot be avoided, feasible mitigation measures must be implemented.

In the event that potentially significant buried archaeological materials are encountered within the Project area, all work in the vicinity must be halted until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource. As well, Health and Safety Code § 7050.5, § 15064.5(e) of the *CEQA Guidelines*, and PRC § 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery. Specifically, the Riverside County Coroner must be notified within 24 hours of the discovery of potentially human remains. The Coroner must then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she must contact the NAHC by phone within 24 hours. The NAHC then designates a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification. The MLD will then have the opportunity to recommend to the Project proponent means for treating or disposing, with appropriate dignity, the human remains and associated grave goods within 24 hours of notification.

7
REFERENCES

Amsden, C. A.
1935 The Pinto Basin Artifacts. In The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert, edited by E. W. C. Campbell and W. H. Campbell, pp. 33–51. *Southwest Museum Papers* No. 9.

Antevs, E.
1955 Geologic-Climatic Dating in the West. American Antiquity 20:317–335.

Arnold, J. E.
1987 Craft Specialization in the Prehistoric Channel Islands, California. *University of California Publications in Anthropology* 19. University of California Press, Berkeley, California.

1992a Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands. *American Antiquity* 57:60–84.

1992b Cultural Disruption and the Political Economy in Channel Islands Prehistory. In *Essays on the Prehistory of Maritime California*, edited by T. L. Jones, pp. 129–144. Center for Archaeological Research at Davis Publication 10.

Arnold, J. E., R. H. Colten, and S. Pletka
1997 Contexts of Cultural Change in Insular California. *American Antiquity* 62:300–318.

Basgall, M. E., and D. L. True
1985 *Archaeological Investigations in Crowder Canyon, 1973–1984: Excavations at Sites SBR-421B, SBR-421C, SBR-421D, and SBR-713*. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to the USDA Forest Service, Inyo National Forest, Bishop, California

Bean, Lowell J.
1978 Cahuilla. In California, edited by Robert F. Heizer, pp. 575–587. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and James Toenjes
2011 Native American Ethnographic Context. In Draft Chuckwalla Valley Prehistoric Trails Network Cultural Landscape: Historic Context, Research Questions, and Resource Evaluation Criteria. Prepared for California Energy Commission, Sacramento, California. Prepared by ASM Affiliates, Inc., Carlsbad, California, under contract with the Aspen Environmental Group, Agoura Hills, California.

Brackett, R. W.
1939 A History of the Ranchos of San Diego County, California. Union Title and Trust Company, San Diego, California.

Campbell, E. W. C., and W. H. Campbell
1935 The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert. *Southwest Museum Papers* No. 9.

City of Beaumont, California
2013 A Canopy of Green. Electronic document, http://www.ci.beaumont.ca.us/index.aspx?NID=656, accessed August 6, 2013.

Clewlow, C. W., Jr., H. F. Wells, and A. G. Pastron (editors)
1978 *The Archaeology of Oak Park, Ventura County, California*. Institute of Archaeology Monographs 5(1–2). University of California, Los Angeles, California.

Dallas, S. F.
1955 The Hide and Tallow Trade in Alta California 1822–1848. Ph.D. Dissertation, Indiana University [no city].

Enzel, Yehouda, W. J. Brown, R. Y. Anderson, L. D. McFadden, and S. G. Wells
1992 Short-Duration Holocene Lakes In The Mojave River Drainage Basin, Southern California. *Quaternary Research* 38:60–73.

Goldberg, S. K.
2001 Land Use, Mobility, and Intensification Evaluation and Refinement of the Model. In Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 14. Susan K. Goldberg, general editor.

Goldberg, S. K., and J. E. Arnold
1988 *Prehistoric Sites in the Prado Basin, California: Regional Context and Significance Evaluation*. INFOTEC Research, Inc., Sonora, California. Submitted to the U.S. Army Corps of Engineers, Los Angeles District, Los Angeles, California.

Goldberg, S. K., and M. C. Horne
2001 Revised Research Design for Eastside Reservoir Project Prehistoric Archaeology. In *Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 2*. Susan K. Goldberg, general editor.

Goldberg, S. K., C. J. Klink, J. A. Onken, W. G. Spaulding, M. C. Robinson, M. C. Horne, and R. L. McKim
2001 Metropolitan Water District of Southern California Eastside Reservoir Project Final Report of Archaeological Investigations, Vol. IV: Synthesis of Findings. Applied EarthWorks, Inc., Hemet California. Submitted to the Metropolitan Water District of Southern California, Los Angeles, California.

Grenda, Donn R.
1997 *Continuity & Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore*. Technical Series 59, Statistical Research, Inc., Tucson, Arizona. Submitted to the U. S. Army Corps of Engineers, Los Angeles District, Los Angeles, California.

Gunther, Jane Davies
1984 Riverside County, California, Place Names: Their Origins and Their Stories. Rubidoux Printing Company, Riverside, California.

Hall, S. A.
1985 Quaternary Pollen Analysis and Vegetational History of the Southwest. In Pollen Records of Late Quaternary North American Sediments, V. Bryant, Jr., and R. Holloway, editors, pp. 95–124. American Association of Stratigraphic Palynologists Foundation, Dallas, Texas.

Haynes, C. V.
1967 Quaternary Geology of the Tule Springs Area, Clark County, Nevada. In Pleistocene Studies in Southern Nevada, H. M. Wormington and D. Ellis, editors, pp. 15–104. Nevada State Museum Anthropological Papers 13.

Holtzclaw, Kenneth M., and Mayor Jeff Fox
2007 Beaumont. Images of America series, Arcadia Publishing, San Francisco, CA.

Horne, M. C.
2001 Site Structure and Features. In Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 8. Susan K. Goldberg, general editor.

Horne, Melinda C., and Dennis P. McDougall
2008 *CA-RIV-6069: Early Archaic Settlement and Subsistence in the San Jacinto Valley, Western Riverside County, California*. Applied EarthWorks, Inc., Hemet, CA. Submitted to The Metropolitan Water District of Southern California, Los Angeles, California.

Jones, T. L., G. M. Brown, L. M. Raab, J. L. McVickar, W. G. Spaulding, D. J. Kennett, A. York, and P. L. Walker
1999 Environmental Imperatives Reconsidered: Demographic Crises in Western North America during the Medieval Climatic Anomaly. Current Anthropology, 40(2):137–170.

Kennett, Douglas J., and James P. Kennett
2000 Competitive and Cooperation Responses to Climatic Instability in Coastal Southern California. American Antiquity 65:379–395.

King, C. D.
1982 *The Evolution of Chumash Society: A Comparative Study of Artifacts Used in Social System Maintenance in the Santa Barbara Channel Region Before A.D. 1804*. Ph.D. dissertation, Department of Anthropology, University of California, Davis. University Microfilms, Ann Arbor, Michigan.

1990 Evolution of Chumash Society: A Comparative Study of Artifacts Used for Social System Maintenance in the Santa Barbara Channel Region Before A.D. 1804. In *Evolution of North American Indians*, edited by D. H. Thomas. Garland, New York, New York.

King, T. F.
1967 *Test Excavations at MRN-375, the Palo Marin Site in Point Reyes National Seashore*. Society for California Archaeology, R. E. Schenk Memorial Archives of California Archaeology 17. San Francisco, California.

Klink, C. J.
2001a Ground Stone Tool Production and Technological Strategies. In *Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 10.* Susan K. Goldberg, general editor.

2001b Flaked Stone Tool Production and Technological Strategies. In *Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 9.* Susan K. Goldberg, general editor.

2001c Artifact Assemblage Structure and Content. In *Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 13.* Susan K. Goldberg, general editor.

Koerper, Henry C.
1981 *Prehistoric Subsistence and Settlement in the Newport Bay Area and Environs, Orange County, California*. Ph.D. dissertation, University of California, Riverside. University Microfilms, Ann Arbor, Michigan.

Koerper, Henry C., and Chris E. Drover
1983 Chronology Building for Coastal Orange County, the Case from CA-ORA-119A. *Pacific Coast Archaeological Society Quarterly*, 19(2):1–34.

Kowta, M.
1969 *The Sayles Complex: A Late Milling Stone Assemblage from the Cajon Pass and the Ecological Implications of Its Scraper Planes.* University of California Publications in Anthropology 6. Berkeley and Los Angeles, California.

Lancaster, Jeremy T., Cheryl A. Hayhurst, Trinda L. Bedrossian, Solomon McCrea, Michelle Myers, and Shannon Utley

2012 Preliminary Geologic Map of Quaternary Surficial Deposits in Southern California, Palm Springs 30' X 60' Quadrangle. California Geologic Survey (CGS), CGS Special Report 217, plate 24.

Langum, David J.

1987 Law and Community on the Mexican California Frontier: Anglo-American Expatriates and the Clash of Legal Traditions, 1821–1846. University of Oklahoma Press, Norman, Oklahoma.

Larson, D. O.

1987 *An Economic Analysis of the Differential Effects of Population Growth and Climatic Variability Among Hunters and Gatherers and Food Producers.* Ph.D. dissertation, Department of Anthropology, University of California, Santa Barbara, California.

Lebow, C. G. (editor)

2000 Changing Land-Use Strategies on Vandenberg AFB. In *Eligibility Testing at CA-SBA-935, -2321, and -2345 for El Niño Related Road Repairs, Vandenberg Air Force Base. California*, pp. 8-1--8-4. Applied EarthWorks, Inc., Fresno, California. Submitted to 30 CES/CEV, Vandenberg Air Force Base, California, USAF Contract No. F04684-95-C-0045.

McDougall, D. P.

1995 *Metropolitan Water District, Eastside Reservoir Project, Summary of Emergency Investigations of Historic Properties, Prehistoric Site CA-RIV-5786.* Applied EarthWorks, Inc., Hemet, California. Submitted to Metropolitan Water District of Southern California, Los Angeles, California.

2001 CA-RIV-5045: The Diamond Valley Pinto Site. In *Metropolitan Water District of Southern California, Eastside Reservoir Project Archaeological Investigations, Vol. II: Archaic and Late Prehistoric Occupation Sites*. Susan K. Goldberg, general editor, pp. 8.1–8.94.

2003 *Second Cultural Resources Survey of a Portion of the Lake Mathews Inundation Zone*. Applied EarthWorks, Inc., Hemet, California. Prepared for the Metropolitan Water District of Southern California, Los Angeles, California.

McKim, R. L.

2001 Faunal Assemblages: Vertebrate Faunal Remains. In Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 12. Susan K. Goldberg, general editor.

Mehringer, P. J., and C. N. Warren

1976 Marsh, Dune, and Archaeological Chronology, Ash Meadows, Amargosa Desert, Nevada. In Holocene Environmental Change in the Great Basin, R. Elston, editor, Nevada Archaeological Survey Research Papers, pp. 120–150.

Meighan, C. W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10(2):215–227.

Moratto, M. J.
1984 *California Archaeology*. Academic Press, New York.

Moratto, M. J., T. F. King, and W. B. Woolfenden
1978 Archaeology and California's Climate. *The Journal of California Anthropology* 5(2):147–161.

Morton, D.M. and Miller, F.K.,
2006 Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California. U.S. Geological Survey, Open-File Report (OF)-2006-1217, scale 1:100,000.

NETROnline
2017 Historic Aerials, 1966, 1967, 1972. https://www.historicaerials.com/viewer. Accessed 8.7.17.

Norris, Robert M., and Robert W. Webb
1976 Geology of California. John Wiley & Sons, New York.

O'Connell, J. F., P. J. Wilke, T. F. King, and C. L. Mix (editors)
1974 *Perris Reservoir Archaeology: Late Prehistoric Demographic Change in Southeastern California*. California Department of Parks and Recreation Archaeological Reports 14.

Onken, J. A., and M. C. Horne
2001 Chronosequencing. In *Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 3.* Susan K. Goldberg, general editor.

Rawls, James J., and Walton Bean
1998 California, An Interpretive History. McGraw-Hill Companies, Boston, Massachusetts.

Robinson, Mark C.
1998 Arrow Points from the Eastside Reservoir Project: Typology and Chronology in the Late Prehistoric of Riverside County, California. Unpublished Master's Thesis, University of Oregon, Eugene, Oregon.

2001 CA-RIV-4627/H: The Garbani Site. In *Metropolitan Water District of Southern California, Eastside Reservoir Project Archaeological Investigations, Vol. II: Archaic and Late Prehistoric Occupation Sites*. Susan K. Goldberg, general editor, pp. 165–324. Submitted to Metropolitan Water District of Southern California, Los Angeles. Applied EarthWorks, Inc., Hemet, California.

Robinson, W. W.
1957 The Story of Riverside County. Title Insurance and Trust Company, Los Angeles.

Rogers, D. B.
1929 *Prehistoric Man on the Santa Barbara Coast*. Santa Barbara Museum of Natural History Special Publications 1. Santa Barbara, California.

Rolle, Andrew F.
1978 California: A History. Harlan Davidson, Inc, Arlington Heights, Illinois.

SCEDC (Southern California Earthquake Data Center)
2013 San Andreas Fault Zone, Significant Earthquakes and Faults. Published by the Southern California Earthquake Center. http://www.data.scec.org/significant/sanandreas.html (accessed March 2017).

Spaulding, W. G.
1991 A Middle Holocene Vegetation Record From The Mojave Desert And Its Paleoclimatic Significance. Quaternary Research 35:427–437.

1995 Environmental Change, Ecosystem Responses, and the Late Quaternary Development of the Mojave Desert. In Late Quaternary Environments and Deep History: A Tribute to Paul S. Martin, edited by D. Steadman and J. Mead. The Mammoth Site of Hot Springs, South Dakota, Inc. Scientific Papers, Volume 3. Hot Springs, South Dakota.

2001 Paleoenvironmental Context of the Study Area. In Metropolitan Water District of Southern California Eastside Reservoir Project Archaeological Investigations, Vol. IV: Chapter 5. Susan K. Goldberg, general editor.

Springer, K. B., Scott, E., Sagebiel, J. C., and Scott, K. M.
1999 A late Pleistocene lake edge vertebrate assemblage from the Diamond Valley, Riverside County, California. Journal of Vertebrate Paleontology v. 19, no. 77A.

True, D. L.
1958 An Early Gathering Complex in San Diego County, California. *American Antiquity* 23:255–263.

1966 Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles, California.

1970 Investigations of a Late Prehistoric Complex in Cuyamaca State Park, San Diego County, California. Archaeological Survey Monographs No. 1, University of California, Los Angeles, California.

True, D. L., C. W. Meighan, and H. Crew
1974 Archaeological Investigation at Molpa, San Diego County, California. *University of California Publications in Anthropology* 11. Berkeley, California.

True, D. L., R. Pankey, and C. N. Warren
1991 *Tom-Kav: A Late Village Site in Northern San Diego County, California and Its Place in the San Luis Rey Complex*. University of California Publications Anthropological Records, Volume 30. University of California Press.

U.S. Geological Survey (USGS)
1901 Elsinore, California 30-minute Quadrangle. USGS, Denver, Colorado.

1901 San Jacinto, California 30-minute Quadrangle. USGS, Denver, Colorado.

1942 Perris, California 15-minute Quadrangle. USGS, Denver, Colorado.

1943 Banning, California 15-minute Quadrangle. USGS, Denver, Colorado.

1953 El Casco, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

1953 San Jacinto, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

1955 Beaumont, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

1956 Banning, California 15-minute Quadrangle. USGS, Denver, Colorado.

1967 El Casco, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

1972 Beaumont, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

1972 San Jacinto, California 7.5-minute Quadrangle. USGS, Denver, Colorado.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. Southwestern Journal of Anthropology 11:214–230.

1978 Post Pleistocene Archaeology 9000-2000 B.C. In R.F. Heizer (ed.), Handbook of North American Indians, Vol. 8, California. Washington DC: Smithsonian Institution, pp. 25-36.

Warren, Claude N.
1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. *Eastern New Mexico University Contributions in Archaeology* 1(3):1–15.

1980 The Archaeology and Archaeological Resources of the Amargosa–Mojave Basin Planning Units. In *A Cultural Resources Overview for the Amargosa–Mojave Basin Planning Units*, by C. N. Warren, M. Knack, and E. von Till Warren. U.S. Bureau of Land Management, Cultural Resources Publications, Anthropology–History, Riverside, California.

1984 The Desert Region. In California Archaeology, by Michael J. Moratto, pp. 339–430. Academic Press, New York and London.

Warren, Claude N., and Richard H. Crabtree
1986 Prehistory of Southwestern Area. In *Handbook of North American Indians, Volume 11, Great Basin*, edited by Warren L. D'Azevedo, pp. 183–193. Smithsonian Institution, Washington, D. C.

Warren, C. N., D. L. True, and A. A. Eudey
1961 Early Gathering Complexes of Western San Diego County: Results of Interpretation of an Archaeological Survey. *Archaeological Survey Annual Report 1960–1961*:1–106. Institute of Archaeology, University of California, Los Angeles, California.

Waters, M. R.
1983 Late Holocene Lacustrine Chronology and Archaeology of Lake Cahuilla. *Quaternary Research* 19:373–387.

Yule, Doug
2009 The Enigmatic San Gorgonio Pass. The Geological Society of America, Geology, February 2009, v. 37; no. 2; p. 191–192.

APPENDIX A

Native American Coordination

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

April 12, 2017

Roberta Thomas
Applied EarthWorks, Inc.

Sent by E-mail: rthomas@appliedearthworks.com

RE: Proposed City of Beaumont General Plan Update Project; Beaumont, El Casco, Lakeview, and San Jacinto USGS Quadrangles, Riverside County, California

Dear Ms. Thomas:

Attached is a list of tribes that have cultural and traditional affiliation to the areas of potential project effect (APE) referenced above. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult, as may be required under particular state statutes. If a response has not been received within two weeks of notification, the Native American Heritage Commission (NAHC) requests that you follow-up with a telephone call to ensure that the project information has been received.

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* (SLF) was completed for the area of potential project effect (APE) for the above referenced project. Sites have been located within the APEs you provided that may be impacted by the project. Please immediately contact the Torres-Martinez Desert Cahuilla Indians at (760) 399-0022 ext. 1213 for more information about these sites:

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

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Native American Heritage Commission
Native American Contact List
Riverside County
4/12/2017

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Augustine Band of Cahuilla Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760)398-4722
Fax: (760)369-7161

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760)342-2593
Fax: (760)347-7880

Cahuilla Band of Indians
Luther Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Campo Kumeyaay Nation
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619)478-9046
Fax: (619)478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619)445-6315
Fax: (619)445-9126

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Jamul Indian Village of California
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619)669-4785
Fax: (619)669-4817

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619)478-2113
Fax: (619)478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed City of Beaumont General Plan Update Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
4/12/2017

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760)782-0711
Fax: (760)782-0712
Chapparosa@msn.com

Los Coyotes Band of Cahuilla and Cupeño Indians
John Perada, Environmental Director
P. O. Box 189 — Cahuilla
Warner Springs, CA, 92086
Phone: (760) 782 - 0712
Fax: (760) 782-2730

Manzanita Band of the Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Manzanita Band of the Kumeyaay Nation
Nick Elliott, Cultural Resources Coordinator
P. O. Box 1302 — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957
nickmepa@yahoo.com

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270 — Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760)782-3818
Fax: (760)782-9092
mesagrandeband@msn.com

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951)849-8807
Fax: (951)922-8146

Ramona Band of Cahuilla
John Gomez, Environmental Coordinator
P. O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramonatribe.com

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951)763-4105
Fax: (951)763-4325
admin@ramonatribe.com

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Kitanemuk, Serrano, Tataviam
Newhall, CA, 91322
Phone: (760) 885 - 0955
tsen2u@hotmail.com

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed City of Beaumont General Plan Update Project, Riverside County.

Native American Heritage Commission
Native American Contact List
Riverside County
4/12/2017

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365 — Kumeyaay
Valley Center, CA, 92082
Phone: (760)749-3200
Fax: (760)749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 — Kumeyaay
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Santa Rosa Band of Mission Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909)528-9027

Soboba Band of Luiseno Indians
Rosemary Morillo, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
rmorillo@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Carrie Garcia, Cultural Resources Manager
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951)654-2765
Fax: (951)654-4198
carrieg@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 312 - 1935

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619)445-2613
Fax: (619)445-1927
ssilva@sycuan-nsn.gov

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Native American Heritage Commission
Native American Contact List
Riverside County
4/12/2017

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

Viejas Band of Kumeyaay Indians
Robert J. Welch, Chairperson
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619)445-3810
Fax: (619)445-5337
jhagen@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed City of Beaumont General Plan Update Project, Riverside County.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
nahc@pacbell.net

Information Below is Required for a Sacred Lands File Search

Date: March 10, 2017

Project: City of Beaumont General Plan Update

County: Riverside

USGS Quadrangle Name: Beaumont, El Casco, Lakeview, and San Jacinto

Township __ Range __ Section(s): Various; see accompanying map set

Company/Firm/Agency: Applied EarthWorks, Inc.

Contact Person: Roberta Thomas

Street Address: 133 N San Gabriel Blvd., Suite 201

City: Pasadena Zip: 91107

Phone: (626) 578-0119

Fax: (626) 204-5590

Email: rthomas@appliedearthworks.com

Project Description: Æ was contracted to conduct a desktop analysis to assess the baseline cultural resource sensitivity of the updated General Plan area for the City of Beaumont.

Applied EARTHWORKS Inc.

133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107-3414
(626) 578-0119

August 29, 2017

Lee Clauss, Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346
Transmitted via email to lclauss@sanmanuel-nsn.gov

Re: Cultural Resource Investigation for the City of Beaumont's 2006 General Plan Update, Riverside County, California

Dear Mr. Clauss,

On behalf of Albert A. Webb Associates, Applied EarthWorks, Inc. (Æ) is conducting a desktop cultural resource sensitivity study, in compliance with the California Environmental Quality Act (CEQA), for the City of Beaumont's (City) 2006 General Plan Update Project (Project) within the city of Beaumont, in Riverside County, California. The Planning Area encompasses approximately 26,371 acres (41 square miles), of which 19,188 acres (30 square miles) are within the corporate boundaries of the City and 7,183 acres (11 square miles) are located within the City's Sphere of Influence (SOI). The city is bordered by the County of Riverside and City of San Jacinto to the south, County of Riverside and City of Banning to the east, the County of Riverside to the west and the City of Calimesa and community of Cherry Valley to the north. The existing City limits generally extend north and south of Interstate 10 and State Route 60. The City's SOI encompasses areas to the south of Interstate 10 (I-10) and State Route 60 (SR-60) in the regions referred to as Lamb Canyon, Laborde Canyon, portions of the San Timoteo Badlands and Poppet Flats (see attached map).

A cultural resource literature review and records search conducted at the Eastern Information Center (EIC) housed at the University of California, Riverside, indicates that no less than 59 cultural resource studies have been conducted within the Planning area. The records search also indicated that 293 cultural resources have been identified within the Planning area. The majority of these resources (n=201) are built-environment resources consisting in large part of single family residences but also include commercial properties, civic buildings, transmission lines, flood control structures, roadways, and at least one trail. The remaining resources consist of 52 prehistoric archaeological resources, including lithic and ceramic scatters, milling features sites, rock art sites, and isolated flakes and ground stone artifacts; 35 historical archaeological resources, including refuse scatters, structural remains, wells, a rocket test site, and isolated glass fragments; and 5 multiple component (containing both historical and prehistoric artifacts) sites, including lithic and ceramic scatters with historical refuse, habitation sites with rock art and historical refuse, and milling features sites with historical refuse.

As part of the cultural resource assessment of the Project area, Æ requested a search of the Native American Heritage Commission's (NAHC's) *Sacred Lands File* on March 10, 2017. The NAHC responded on April 12, 2017 indicating that Native American cultural resources were identified within the Project area and may be impacted by the Project. Should your records show that cultural properties exist within or near the Project area shown on the enclosed map, please contact me at (626) 578-0119 (ext. 116) or via e-mail at rthomas@appliedearthworks.com. If I do not hear from you within in the next two weeks, I will contact you with a follow-up phone call or email.

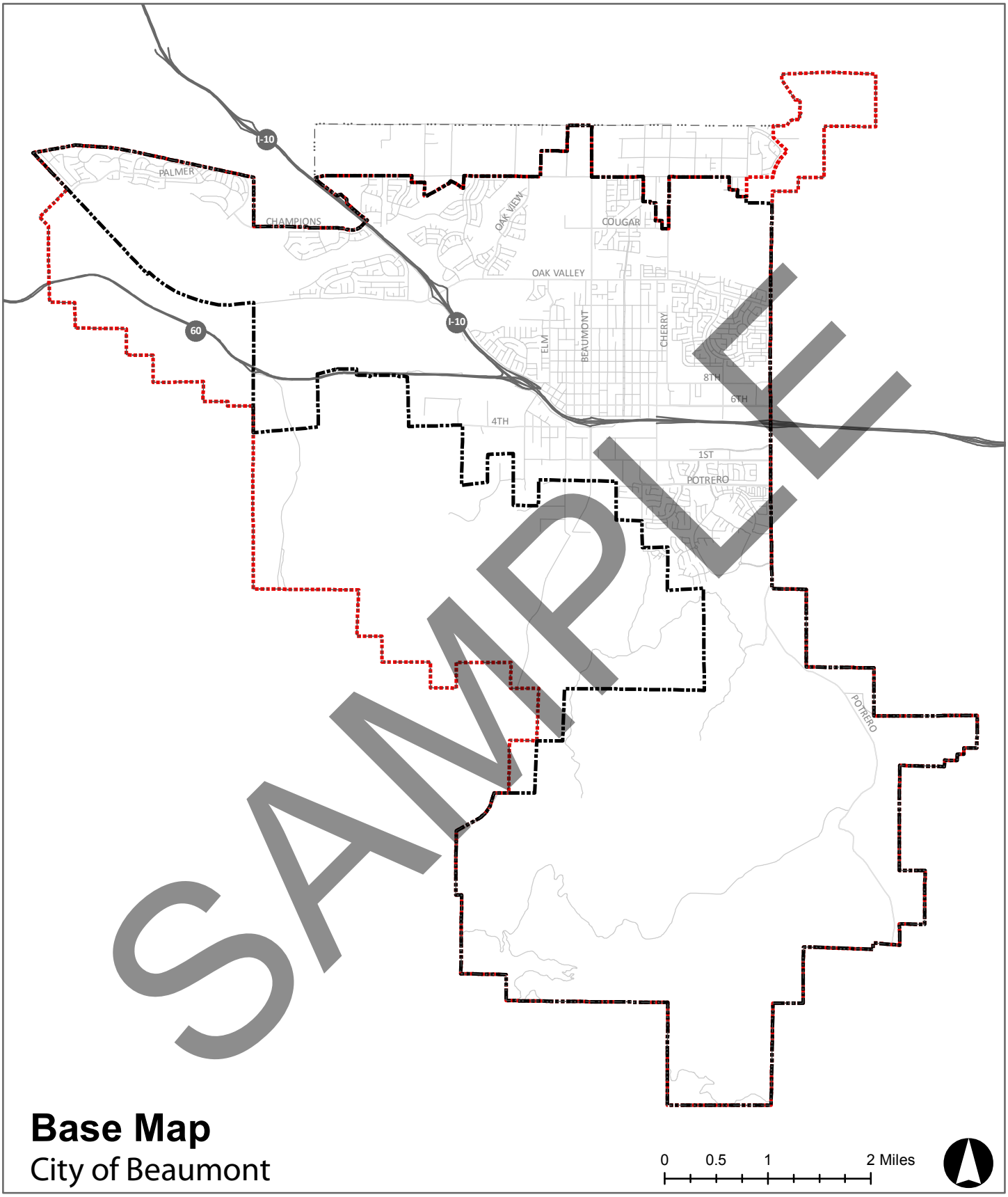
SAMPLE

Your comments are very important to us, and to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

Respectfully yours,

Roberta Thomas, M.A., RPA
Associate Archaeologist
Applied EarthWorks, Inc.

SAMPLE



Base Map

City of Beaumont

0 0.5 1 2 Miles

Legend

- Sphere of Influence Boundary
- City Boundary
- Planning Area Boundary
- Highways
- Major Roads
- Local Roads

LIST OF NATIVE AMERICAN CONTACTS AND RECORD OF RESPONSES

Name	Initial Letter Contact	Follow Up	Responses
Patricia Garcia-Plotkin Director of the Tribal Historic Preservation Office Agua Caliente Band of Cahuilla Indians (ACBCI)	Letter/email sent on August 29, 2017		Ms. Katie Croft, Archaeologist in the Tribal Historic Preservation Office, responded via email on September 26 indicating that the Project area is not located within the boundaries of the ACBCI Reservation; however, it is within the Tribe's Traditional Use Area. As such, the ACBCI THPO requests copies of any cultural resource documentation (report and site records) generated in connection with this Project.
Amanda Vance Chairperson Augustine Band of Cahuilla Mission Indians	Letter/email sent on August 29, 2017		Mr. William Vance, Vice Chairperson, responded via email on September 14 indicating that the Tribe is unaware of specific cultural resources that may be affected by the Project. The Tribe encourages contact with other Native American tribes and individuals within the immediate vicinity of the Project. In addition, the Tribe encourages contracting a monitor who is qualified in Native American resource identification who is able to be present full-time during the pre-construction and construction phase of the Project. Finally, the Tribe would like to be notified should any cultural resources be discovered during the development of the Project.
Doug Welmas Chairperson Cabazon Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	No answer at the number listed. No response received to date.
Luther Salgado Chairperson Cahuilla Band of Indians	Letter/email sent on August 29, 2017	September 26, 2017	Directed to Cultural Resource Department; Bobby Esperza, Cultural Coordinator, requested to have the original correspondence sent to him. He indicated if the Tribe had any information or concerns they would send a response. No response received to date.
Ralph Goff Chairperson Campo Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.

Name	Initial Letter Contact	Follow Up	Responses
Michael Garcia Vice Chairperson Ewiiaapaayp Tribal Office	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Erica Pinto Chairperson Jamul Indian Village	Letter/email sent on August 29, 2017	September 26, 2017	Directed to Lisa Cumper, left a message. No response received to date.
Javaughn Miller Tribal Administrator La Posta Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Directed to Gwendolyn Parada, left a message. No response received to date.
John Perada Environmental Director Los Coyotes Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Nick Elliott Cultural Resources Coordinator Manzanita Band of Kumeyaay Nation	Letter/email sent on August 29, 2017	September 26, 2017	Mr. Elliott is no longer the contact; sent follow up email to NativeSpirit91@aol.com so that the letter and map will be dispersed to the appropriate person. No response received to date.
Virgil Oyos Chairperson Mesa Grande Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Informed by Executive Assistant that if the Chairman has not sent a response that means the Tribe does not have any information or concerns to share. No response received to date.
Denisa Torres Cultural Resource Manager Morongo Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Directed to Raymond Huaute; left a message. No response received to date.
John Gomez Environmental Coordinator Ramona Band of Cahuilla Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
John Valenzuela Chairperson San Fernando Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.

Name	Initial Letter Contact	Follow Up	Responses
Lee Clauss Director of Cultural Resources San Manuel Band of Mission Indians	Letter/email sent on August 29, 2017		Ms. Jessica Mauck, Cultural Resource Analyst, responded via email on August 30, 2017. Ms. Mauck indicated that the Project area exists within a small portion of Serrano ancestral territory and, therefore, is of interest to the SMBMI. San Timoteo Canyon and the Badlands are located within this portion of the Project. Both of these areas are rich in cultural material and important to SMBMI. Ms. Mauck also stated there are several water sources within the Badlands and further north, specifically Little San Gorgonio Creek, which could indicate moderate archaeological sensitivity. Finally, Ms. Mauck recommended contacting the Morongo Band of Mission Indians as well as the Soboba Band of Luiseno Indians given that their reservations are very close to the Project area
John Flores Environmental Coordinator San Pasqual Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Steven Estrada Chairperson Santa Rosa Band of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Goldie Walker Chairwoman Serrano Nation of Mission Indians	Letter/email sent on August 29, 2017	September 26, 2017	Ms. Walker indicated that the Project area and immediate vicinity area very sensitive for Native American cultural resources. She also indicated that she would like to be notified at her PO Box should any Native American cultural resources be found within the Project area (see NAHC Contact List for full address).

Name	Initial Letter Contact	Follow Up	Responses
Joseph Ontiveros Cultural Resource Department Soboba Band of Luiseno Indians	Letter/email sent on August 29, 2017	September 26, 2017	Mr. Ontiveros requested that the letter and map be resent; he does not know why a response was not received. Ms. Jessica Valdez sent a formal email response on September 27 indicating that while the Project area is located outside of the Tribe's existing reservation, the Project area does fall within the Tribe's Traditional Use Areas and is in close proximity to known sites. The Project area is within a shared use area that was used in ongoing trade between tribes and is considered to be culturally sensitive by the people of Soboba. As such, the Tribe outlines five requests including consultation with the Project proponents and lead agency, information regarding progress of the project, the Tribe to act as a consulting entity, a Native American monitor from the Soboba Cultural Resource Department to be present during any ground disturbance as well as survey and archaeological testing, and finally, request that proper procedures be taken and requests of the Tribe be honored.
Lisa Haws Cultural Resources Manager Sycuan Band of the Kumeyaay Nation	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Michael Mirelez Cultural Resource Coordinator Torres-Martinez Desert Cahuilla Indians	Letter/email sent on August 29, 2017	September 26, 2017	Left a message on the number listed. No response received to date.
Julie Hagen Viejas Band of Kumeyaay Indians	Letter/email sent on August 29, 2017		Ray Teran, Resource Management, sent a response via email on September 7 stating that the Tribe determined the Project has little significance or ties to the Viejas. As such, the Tribe recommends contacting tribes in closer proximity to the Project. However, the Tribe does request to be informed of any inadvertent discoveries including cultural artifacts, cremations, or human remains.

Roberta Thomas

From: Jessica Mauck
Sent: Wednesday, August 30, 2017 11:08 AM
To: 'Roberta Thomas'
Subject: RE: Beaumont General Plan Update Project

Correction: Morongo Band of Mission Indians. My fingers type faster than my brain thinks, sometimes!

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive, Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Jessica Mauck
Sent: Wednesday, August 30, 2017 11:06 AM
To: 'Roberta Thomas'
Subject: RE: Beaumont General Plan Update Project

Hi Robbie,

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above referenced project. SMBMI appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on 29 Aug 2017. The proposed project area exists within a small portion of Serrano ancestral territory and, therefore, is of interest to the Tribe. As you will see in the attached map, only a small portion of the project area in the northwest is within Serrano ancestral territory. Within this portion of the project exists San Timoteo Canyon and the Badlands, both of which are rich in cultural material and important to SMBMI. There are several water sources within the Badlands and further north, specifically Little San Gorgonio Creek, which could indicate moderate archaeological sensitivity. I recommend speaking with staff at Morongo Band of Cahuilla Indians as well as Soboba Band of Luiseno Indians given that their reservations are very close to the area, as well as the rest of the project location.

Regards,

From: Roberta Thomas [mailto:rthomas@appliedearthworks.com]
Sent: Tuesday, August 29, 2017 6:37 PM
To: Lee Clauss
Cc: Jessica Mauck
Subject: Beaumont General Plan Update Project

Good evening,

Attached please find a scoping letter and map for the Beaumont General Plan Update Project in the city of Beaumont, Riverside County.

Thank you,
Robbie

Roberta Thomas **| Applied EarthWorks, Inc.**
Associate Archaeologist

133 North San Gabriel Blvd., Ste 201
Pasadena, CA 91107
626.578.0119 ext. 116 office
www.appliedearthworks.com

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VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 619.445.3810
Fax: 619.445.5337
viejas.com

September 7, 2017

Roberta Thomas
Associate Archaeologist
Applied Earth Works, Inc.
133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107

Re: City of Beaumont's 2006 General Plan Update

Dear Ms. Thomas,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site is has little cultural significance or ties to Viejas. We further recommend that you contact the tribe(s) closest to the cultural resources. We, however, request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order for us to reevaluate our participation in the government-to-government consultation process.

Please do not hesitate to contact me if you have further questions. Please call Ernest Pingleton at 619-659-2314 or me at 619-659-2312, or email, epingleton@viejas-nsn.gov or rteran@viejas-nsn.gov. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

AUGUSTINE BAND OF CAHUILLA INDIANS

PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance

September 14, 2017

Ms. Roberta Thomas
Applied Earth Works, Inc.
3550 E. Florida Ave., Ste H
Hemet, CA 92544-4937

RE: City of Beaumont's 2006 General Plan Update

Dear Ms. Thomas-

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time we are unaware of specific cultural resources that may be affected by the proposed project. We encourage you to contact other Native American Tribes and individuals within the immediate vicinity of the project site that may have specific information concerning cultural resources that may be located in the area. We also encourage you to contract with a monitor who is qualified in Native American cultural resources identification and who is able to be present on-site full-time during the pre-construction and construction phase of the project. Please notify us immediately should you discover any cultural resources during the development of this project.

Very truly yours,

William Vance

William Vance
Tribal Vice Chairperson

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-036-2017-003

September 26, 2017

[VIA EMAIL TO:rthomas@appliedearthworks.com]
Applied Earthworks
Ms. Roberta Thomas
133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107-3414

Re: Beaumont General Plan Cultural Sensitivity Study

Dear Ms. Roberta Thomas,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the General Plan Update project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

> *Copies of any cultural resource documentation (report and site records) generated in connection with this project.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6829. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Katie Croft

Katie Croft
Archaeologist
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

September 27, 2017

Attn: Roberta Thomas, Associate Archaeologist
Applied EarthWorks, Inc.
133 North San Gabriel Boulevard, Suite 201
Pasadena, CA 91107-3414

RE: City of Beaumont's 2006 General Plan Update, Riverside County, CA

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in proximity to known sites, is a shared use area that was used in ongoing trade between the tribes, and is considered to be culturally sensitive by the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the project proponents and lead agency.

2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.

4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

5. Request that proper procedures be taken and requests of the tribe be honored
(Please see the attachment)

Multiple areas of potential impact were identified during an in-house database search. Specifics to be discussed in consultation with the lead agency.

Sincerely,

Joseph Ontiveros, Director of Cultural Resources
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains.

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

Confidentiality: The entirety of the contents of this letter shall remain confidential between Soboba and Applied EarthWorks, Inc. No part of the contents of this letter may be shared, copied, or utilized in any way with any other individual, entity, municipality, or tribe, whatsoever, without the expressed written permission of the Soboba Band of Luiseño Indians.

APPENDIX B

Cultural Resources Within the Project Area

Primary No.	Trinomial	Age	Description
33-000190	CA-RIV-190	Prehistoric	Lithic scatter
33-000239	CA-RIV-239/H	Multicomponent	AH04 (Privies/dumps/trash scatters); AP02 (Lithic scatter); AP03 (Ceramic scatter); AP05 (Petroglyphs); AP06 (Pictographs); AP14 (Rock shelt; Habitation/campsite with adobe fragments, rock art, rock shelters, milling station
33-000240	CA-RIV-240	Prehistoric	Bedrock milling feature
33-000268	CA-RIV-268/H	Prehistoric	Rock Art in rock shelter; slick; abolone pendant; hammerstones; Lamb family homestead
33-001405	CA-RIV-1405	Prehistoric	Rock shelter composed of 3 large granite boulders. Site was not relocated in 1986 or 1989.
33-001631	CA-RIV-1631	Historic-period	Foundations/structure pads, well, refuse scatter
33-002639	CA-RIV-2639	Prehistoric	Four mortars
33-002830	CA-RIV-2830	Prehistoric	Bedrock milling feature
33-003064	CA-RIV-3064	Prehistoric	Large boulder containing a rock shelter. One has a cuple feature and milling features. Evidence of midden is present. Rock art?
33-003065	CA-RIV-3065	Prehistoric	Ceramic scatter
33-003066	CA-RIV-3066	Prehistoric	Bedrock milling station with two slicks.
33-003073	CA-RIV-3073	Prehistoric	Artifact scatter; midden
33-003074	CA-RIV-3074	Prehistoric	Hammerstone, quartzite flake, chopper
33-003445	CA-RIV-3445H	Historic-period	Former railroad station remains, including a cement foundation and a scatter of historic debris. Refuse includes glass, metal, ceramics, building material, bricks, 1 complete bottle with "SELICK PERFUMER NEW YORK"
33-003446	CA-RIV-3446H	Historic-period	Very sparse historic debris scatter and a broken cement foundation. Artifacts include 5 pieces of amethyst glass, 12+ pieces of white ceramics, 1 aqua bottle base.
33-003447	CA-RIV-3447	Historic-period	Sparse refuse scatter
33-003928	CA-RIV-3928H	Historic-period	Refuse scatter
33-003946	CA-RIV-3946	Multicomponent	Complex lithic scatter/refuse
33-004038	CA-RIV-4038	Prehistoric	Lithic scatter
33-004322	CA-RIV-4322	Prehistoric	Rock shelter
33-004323	CA-RIV-4323	Prehistoric	Rock shelter
33-004324	CA-RIV-4324	Prehistoric	Rock shelter/hunting blind
33-004326	CA-RIV-4326	Prehistoric	Rock shelter with rock art
33-004327	CA-RIV-4327	Prehistoric	Lithic scatter
33-004328	CA-RIV-4328	Prehistoric	Lithic reduction site
33-004329	CA-RIV-4329	Prehistoric	Bedrock milling features and lithic scatter
33-004330	CA-RIV-4330	Prehistoric	Temporary food processing station
33-004331	CA-RIV-4331	Prehistoric	Milling station
33-004462	CA-RIV-4462	Prehistoric	IRI-POT-10; MWD-II Reservoirs
33-004715	CA-RIV-4715H	Built Environment	Historic stage road linking Beaumont and San Jacinto Valley. No artifacts were found in association.
33-005060	CA-RIV-5060H	Historic-period	Refuse scatter, dense
33-005061	CA-RIV-5061H	Historic-period	Refuse scatter
33-005062	CA-RIV-5062	Prehistoric	Bedrock milling feature, rock shelter/cave, lithic scatter, ceramic scatter
33-005063	CA-RIV-5063	Prehistoric	Bedrock milling feature
33-005064	CA-RIV-5064	Prehistoric	Bedrock milling feature, rock shelter/cave
33-005065	CA-RIV-5065/H	Multicomponent	Bedrock milling feature and refuse scatter
33-005066	CA-RIV-5066	Prehistoric	Trails/linear earthworks
33-005067	CA-RIV-5067H	Historic-period	Foundations/structure pads
33-005068	CA-RIV-5068H	Historic-period	Foundations/structure pads and well
33-005069	CA-RIV-5069H	Historic-period	Foundations/structure pads and well
33-005070	CA-RIV-5070H	Historic-period	Well
33-005071	CA-RIV-5071H	Historic-period	Refuse scatter and well

Primary No.	Trinomial	Age	Description
33-005072	CA-RIV-5072H	Historic-period	Foundations/structure pads and a refuse scatter
33-005073	CA-RIV-5073H	Historic-period	Well
33-005074	CA-RIV-5074H	Historic-period	Refuse scatter
33-005075	CA-RIV-5075H	Historic-period	Foundations/structure pads, landscaping/orchard, refuse scatter, and wall
33-005094	CA-RIV-5094	Prehistoric	Bedrock milling feature site
33-006093		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006094		Built Environment	Stucco Mediterranean/Spanish Revival style residence built in 1935
33-006095		Built Environment	Vernacular wood frame residence built in 1908
33-006096		Built Environment	Vernacular wood frame house with bungalow characteristics built in 1917
33-006097		Built Environment	Vernacular wood frame residence with bungalow characteristics built in 1919
33-006098		Built Environment	Craftsman-bungalow style residence built in 1920
33-006099		Built Environment	Mediterranean/spanish style residence built in 1934
33-006100		Built Environment	Vernacular/craftsman style residence built in 1922
33-006101		Built Environment	Tutor Revival style home built in 1937
33-006102		Built Environment	Crafstman/bungalow style residence built in 1913
33-006103		Built Environment	Craftsman/bungalow style residence built in 1909
33-006104		Built Environment	Vernacular style residence built in 1911
33-006105		Built Environment	Shotgun/vernacular style residence built in 1912
33-006106		Built Environment	Bungalow style home built in 1933
33-006107		Built Environment	Vernacular style residece built in 1912
33-006108		Built Environment	Vernacular style resideidence built in 1929
33-006109		Built Environment	Bungalow style residence built in 1911
33-006110		Built Environment	Small, Vernacular Ranch style house with a porch.
33-006111		Built Environment	Vernacular style residence built in 1922
33-006112		Built Environment	Vernacular/bungalow style residence built in 1932
33-006113		Built Environment	Vernacular style wood frame house built in 1925
33-006114		Built Environment	Vernacular style residence built in 1925
33-006115		Built Environment	Vernacular style residence built in 1927
33-006116		Built Environment	Late period Bungalow style residence built in 1925
33-006117		Built Environment	Colonial Revival style residence built in 1910
33-006118		Built Environment	Vernacular style residence built in 1907
33-006119		Built Environment	Bungalow style residence built in 1925
33-006120		Built Environment	Vernacular style residence built in 1915
33-006121		Built Environment	Vernacular style residence built in 1915
33-006122		Built Environment	Bungalow style residence built in 1928
33-006123		Built Environment	Vernacular style residence built in 1923
33-006124		Built Environment	Vernacular style residence built in 1922
33-006125		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006126		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006127		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006128		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006129		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006130		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006131		Built Environment	Vernacular style residence built in 1915
33-006132		Built Environment	Vernacular style residence built in 1901
33-006141		Built Environment	Vernacular style residence built in 1931
33-006142		Built Environment	Vernacular style residence built in 1932
33-006143		Built Environment	Vernacular style residence built in 1912
33-006144		Built Environment	Vernacular style residence built in 1908
33-006145		Built Environment	Eastlake Vicotrian style residence built in 1887
33-006146		Built Environment	Vernacular style residence built in 1937

Primary No. Trinomial	Age	Description
33-006147	Built Environment	Vernacular style residence built in 1907
33-006148	Built Environment	Vernacular style residence built in 1910
33-006149	Built Environment	Bungalow style residence built in 1920
33-006150	Built Environment	Bungalow style residence built in 1913
33-006151	Built Environment	Vernacular style residence built in 1913
33-006152	Built Environment	Vernacular style residence built in 1915
33-006153	Built Environment	Vernacular style residence built in 1913
33-006154	Built Environment	Bungalow style residence built in 1925
33-006155	Built Environment	Vernacular ranch style residence built in 1892
33-006156	Built Environment	California Ranch style residence built in 1918
33-006157	Built Environment	Bungalow style residence built in 1920
33-006158	Built Environment	Bungalow style residence built in 1926
33-006159	Built Environment	Vernacular style residence with colonial revival columns built in 1908
33-006160	Built Environment	Vernacular syle wood frame house with bungalow characteristics built in 1908.
33-006161	Built Environment	Vernacular style wood frame house built in 1909.
33-006162	Built Environment	Vernacular style wood frame house with bungalow characteristics built in 1909.
33-006163	Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006164	Built Environment	Vernacular style wood frame house built in 1908.
33-006165	Built Environment	Church built in a local, vernacular version of the Second Renaissance Revival built in 1917.
33-006166	Built Environment	Vernacular style residence built in 1912
33-006167	Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006168	Built Environment	Vernacular sytle residence built in 1915
33-006169	Built Environment	Vernacular style residence built in 1937
33-006170	Built Environment	Bogart House
33-006171	Built Environment	Bungalow style residence built in 1927
33-006172	Built Environment	Vernacular style duplex built in 1929
33-006173	Built Environment	Vernacular style residence built in 1926
33-006174	Built Environment	Craftsman Bungalow style residence built in 1920
33-006175	Built Environment	Vernacular style residence built in 1917
33-006176	Built Environment	Gothic Revival style church built in 1935
33-006177	Built Environment	Vernacular style residence built in 1907
33-006178	Built Environment	Vernacular style residence built in 1913
33-006179	Built Environment	Vernacular style residence built in 1922
33-006180	Built Environment	Vernacular style residence built in 1890
33-006181	Built Environment	Vernacular style residence built in 1915
33-006182	Built Environment	Vernacular style residence built in 1910
33-006183	Built Environment	Mediterranean/Spanish Revival style residence built in 1924
33-006184	Built Environment	Vernacular style residence built in 1935
33-006185	Built Environment	Mediterranean/Spanish Revival style structure built in 1939. It was used as Beaumont's City Hall.
33-006186	Built Environment	Vernacular style residence built in 1910
33-006187	Built Environment	Vernacular style residence built in 1919
33-006188	Built Environment	Vernacular style residence built in 1920
33-006189	Built Environment	Vernacular style residence built in 1900
33-006190	Built Environment	Bungalow style residence built in 1920
33-006191	Built Environment	Single family residence
33-006192	Built Environment	Gothic Revival style church built in 1913
33-006193	Built Environment	Vernacular style residence built in 1938
33-006194	Built Environment	Vernacular style residence built in 1907
33-006195	Built Environment	Vernacular style residence built in 1912

Primary No.	Trinomial	Age	Description
33-006196		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006197		Built Environment	Small, Vernacular Ranch style house with a stone chimney built in 1937.
33-006198		Built Environment	Vernacular style residence built in 1910
33-006199		Built Environment	Bungalow style residence built in 1918
33-006200		Built Environment	Single family residence
33-006201		Built Environment	Single family residence
33-006202		Built Environment	Provincial Revival style residence built in 1930
33-006203		Built Environment	Single family residence
33-006204		Built Environment	Single family residence
33-006205		Built Environment	Bungalow style residence built in 1918.
33-006206		Built Environment	Vernacular style wood frame house built in 1915.
33-006207		Built Environment	Vernacular style wood frame house built in 1912.
33-006208		Built Environment	Vernacular/Bungalow style residence built in 1914
33-006209		Built Environment	Vernacular style residence built in 1925
33-006210		Built Environment	[Resource record not obtained from the EIC; like single family residence]
33-006211		Built Environment	3 story commercial bank building; combined moderne/beaux arts classic revival style build in 1923.
33-006212		Built Environment	Vernacular wood frame building built in 1918. Site of the Beaumont Women's Club, organized in 1908.
33-006213		Built Environment	Vernacular style wood frame house with bungalow elements built in 1909.
33-006214		Built Environment	Vernacular style wood frame house with bungalow characteristics built in 1912.
33-006215		Built Environment	Spanish Eclectic/Mediterranean Revival style building built in 1928
33-006216		Built Environment	Stucco building with Pueblow Revival style characteristics built in 1932.
33-006217		Built Environment	Vernacular style residence built in 1914
33-006218		Built Environment	Vernacular style wood frame house built in 1920.
33-006219		Built Environment	Vernacular style house build in 1912.
33-006220		Built Environment	Single family residence
33-006221		Built Environment	Vernacular style residence built in 1930
33-006222		Built Environment	Vicorian style residence built in 1908
33-006223		Built Environment	Vernacular style ranch house built in 1908
33-006224		Built Environment	Vernacular ranch style residence built in 1908
33-006225		Built Environment	Bungalow style residence built in 1908
33-006226		Built Environment	Vernacular style residence built in 1923
33-006227		Built Environment	Bungalow style residence built in 1923
33-006228		Built Environment	Ranch complex which dates to 1908. Originally produced olives, then became a stock farm.
33-006229		Built Environment	Jackrabbit Trail
33-006230		Built Environment	Single family residence
33-006231		Built Environment	Single family residence
33-006232		Built Environment	Single family residence
33-006233		Built Environment	Classical revival style library built in 1914.
33-006239		Built Environment	Rest area
33-006735		Built Environment	Vernacular stlye residence built in 1915
33-007295		Built Environment	Historic Haskell Ranch including 3 primary residences, 2 workers' residences, a forman's house, bunckhouse, hay barn, blacksmith shop, milk house, milk/feed storage building, calf pens, silos, grain storage bins, concrete lined reservoir, sheds
33-007296		Built Environment	Historic Singleton Ranch including the 1927 Woodhouse residence, 2 guest houses, a collapsed barn, and metal silos. Subsurface features may be present. See also P-33-15002, which details the irrigation and water port within the ranch site.
33-009027		Prehistoric	Isolated mano
33-009498	CA-RIV-6381H	Built Environment	Historic Southern Pacific Railroad, aquired by Union Pacific Railroad in the 1990s

Primary No.	Trinomial	Age	Description
33-009780	CA-RIV-6508	Prehistoric	Complex lithic scatter, ceramics, bones
33-009781	CA-RIV-6509	Prehistoric	Lithic scatter
33-009782	CA-RIV-6510	Prehistoric	Numerous lithics of unusual materials transported to the site. Site is considered senitive due to its proximity to the Indian villages 'Yukaipa't' and 'Saahatapa'
33-009783	CA-RIV-6511	Prehistoric	Lithic and groundstone scatter. Site is considered sensitive due to its proximity to the Indian villages 'Yukaipa't' and 'Saahatapa'
33-010791	CA-RIV-6512	Prehistoric	Lithic Scatter; site is considered sensitive due to its proximity to the Indian villages 'Tukaipa't' and 'Saahatapa'
33-010792		Built Environment	Flood control structure
33-010794		Historic-period	Historic-era collapsed shed
33-011808		Historic-period	Isolated artifact
33-012306		Prehistoric	Lithic scatter
33-012307		Prehistoric	Lithic scatter
33-012308		Prehistoric	Isolated mano
33-012309		Prehistoric	Isolated mano
33-012548		Prehistoric	Isolated metate frags
33-012549		Prehistoric	Isolated projectile point
33-012639		Historic-period	Isolated glass fragment(s)
33-012640		Historic-period	Isolated glass fragment(s)
33-012641		Historic-period	Isolated glass fragment(s)
33-012816		Prehistoric	Isolated basin metate
33-013151		Prehistoric	Isolated hammerstone/core
33-013157		Prehistoric	Lithic scatter
33-013159		Multicomponent	Isolated refuse light; flake
33-013161		Historic-period	Isolated white ware dish base
33-013162		Prehistoric	Isolated flake
33-013313		Historic-period	Rocket test site
33-013427	CA-RIV-7462H	Historic-period	Historic-era refuse scatter. This site has recently been pot hunted and its boundary has been extended to include additional artifacts.
33-013449	CA-RIV-7468	Prehistoric	Milling slick
33-013612		Prehistoric	Isolated sherd
33-013640	CA-RIV-007504	Historic-period	Remnants of a cherry orchard with apricot and pecan trees and a water irrigation system
33-013677		Prehistoric	Isolated hammerstone
33-013827		Historic-period	Refuse scatter
33-013828		Historic-period	Refuse scatter
33-013829		Historic-period	Historic Palm Trees, Building Foundations, Refuse
33-014135	CA-RIV-7757H	Historic-period	Remains of two adobe buildings, including cobble foundations, adobe rubble, wooden architectural debris, and fragment artifacts associated with the foundations.
33-015033	CA-RIV-7997H	Historic-period	This site was updated in 2013 to include an additional pipe feature. The rest of the site features are in the same condition as originally recorded.
33-015035		Built Environment	Devers-San Bernardino 220kV Transmission Line; constructed in 1945 by SCE. Approximately 43 miles.
33-015243		Built Environment	livestock pen
33-015438	CA-RIV-8139H	Prehistoric	Bedrock milling features
33-015439		Prehistoric	Isolated mano fragment
33-015441		Prehistoric	Isolated metate fragment
33-015672		Historic-period	Water Storage tank
33-015673		Historic-period	Concrete pad and wire
33-015720	CA-RIV-8189H	Built Environment	Historic Paved Ranch Road
33-016122	CA-RIV-11816/H	Multicomponent	Potrero Water Tank Site

Primary No.	Trinomial	Age	Description
33-016815		Prehistoric	Rock shelter/cave, cairns/rock features
33-017122		Built Environment	Lantis Property
33-017922		Built Environment	Single family residence
33-017938	CA-RIV-9469	Prehistoric	Lithic scatter
33-019885	CA-RIV-10119H	Historic-period	Ranching farmstead
33-020295		Built Environment	Single family residence; 11243 Sunnyslope Ave Beaumont (APN 404-100-014)
33-020559	CA-RIV-10460H	Built Environment	Road segment
33-020562	CA-RIV-10463H	Built Environment	Transmission lines
33-020721	CA-RIV-10642H	Built Environment	Two segments of a historical road, known as First Street. Road was identified on a 1953 USGS Quad. No cultural material is associated with this site. The road is still in use.
33-020722	CA-RIV-10644H	Built Environment	Road segment
33-020725	CA-RIV-10647H	Built Environment	Road segment
33-020974		Built Environment	Beaumont Avenue; Hirsch's Deodar Cedar Alignment
33-022386	CA-RIV-11438H	Built Environment	Historic-age residence, ca. 1950s
33-022389		Built Environment	Devers-Vista #1 220kV Transmission Line; extends approximately 45 miles from the Vista Substation to the Devers Substation. Constructed in 1960 by CalElectric.
33-023484		Built Environment	Portions of a telecommunications line associated with the existing Southern California Edison transmission and distribution lines. The pole range in age from 1929 to 2011
33-023485		Built Environment	Spanish Eclectic style residence. Visible on a 1967 aerial photo.
33-023486		Built Environment	Minimal Traditional style residence built before 1967. Visible on a 1967 aerial photo.
33-023487		Built Environment	Minimal Traditional style residence built before 1967. Visible on a 1967 aerial photo.
33-023488		Built Environment	Historic-era residence built before 1967. Visible on a 1967 aerial photo.
33-023489		Built Environment	Historic era residence built before 1967. Visible on a 1967 aerial photo.
33-023490		Built Environment	Commercial Vernacular style building built before 1967. Visible on a 1967 aerial photo.
33-023491		Built Environment	Commerical Vernacular style building built before 1967. Visible on a 1967 aerial photo.
33-023492		Built Environment	Historic-era building built before 1967. Visible on a 1967 aerial photo.
33-023493		Built Environment	Historic-era residence built before 1967. Visible on a 1967 aerial photo.
33-023494		Built Environment	Remodeled Craftsman style residence converted to a dentist office built before 1967. Visible on a 1967 aerial photo.
33-023495		Built Environment	Vernacular style residence built before 1967. Visible on a 1967 aerial photo.
33-023496		Built Environment	Minimal Traditional style residence built before 1967. Visible on a 1967 aerial photo.
33-023497		Built Environment	Vernacular style building built before 1967. Visible on a 1967 aerial photo.
33-023498		Built Environment	Vernacular style residence built before 1967. Visible on a 1967 aerial photo.
33-023499		Built Environment	Ranch style residence built before 1967. Visible on a 1967 aerial photo.
33-023500		Built Environment	California Ranch style residence built before 1967. Visible on a 1967 aerial photo.
33-023501		Built Environment	Spanish Eclectic style residence built before 1967. Visible on a 1967 aerial photo.
33-023502		Built Environment	California Ranch style residence built in 1947
33-023503		Built Environment	California Ranch style residence built in 1953
33-023504		Built Environment	California Ranch style residence built in 1948
33-023505		Built Environment	Vernacular style residence built in 1953
33-023506		Built Environment	Historic era residence built in 1935
33-023507		Built Environment	California Ranch style residence built in 1956
33-023508		Built Environment	Minimal Traditional style residence built in 1946
33-023509		Built Environment	California Ranch style residence built in 1956
33-023510		Built Environment	California Ranch style residence built in 1960
33-023511		Built Environment	Minimal Traditional style residence built in 1949
33-023512		Built Environment	Spanish Revival style residence built in 1947
33-023513		Built Environment	California Ranch style housing tract built in 1959

Primary No.	Trinomial	Age	Description
33-023514		Built Environment	Vernacular style residence built in 1953. Visible on a 1967 aerial photo.
33-023515		Built Environment	Historic-age apartment complex built before 1967. Visible on a 1967 aerial photo.
33-023516		Built Environment	California Ranch style residence built in 1963. Visible on a 1967 aerial photo.
33-023517		Built Environment	California Ranch style residence built in 1946. Visible on a 1967 aerial photo.
33-023518		Built Environment	Historic-age residence built in 1925. Visible on a 1967 aerial photo.
33-023519		Built Environment	Historic-age residence built in 1917.
33-023520		Built Environment	Vernacular style residence built in 1951.
33-023521		Built Environment	California Ranch style residence built in 1959
33-023522		Built Environment	Historic-age residence built in 1936. Visible on a 1967 aerial photo.
33-023523		Built Environment	Historic-age residence built in 1937. Visible on a 1967 aerial photo.
33-023525		Built Environment	California Ranch Style residence built before 1967. Visible on a 1967 aerial photo.
33-023526		Built Environment	Historic-age duplex built before 1967. Visible on a 1967 aerial.
33-023527		Built Environment	Historic-age residence built before 1967. Visible on a 1967 aerial photo.
33-023528		Built Environment	Minimal Traditional style residence built in 1944.
33-023529		Built Environment	Historic-age warehouse built before 1967. Present on a 1967 aerial photo.
33-023530		Built Environment	California Ranch style residence built in 1963.
33-023905		Prehistoric	Isolated flake
33-024668	CA-RIV-12203H	Historic-period	Isolated Metropolitan Water District survey marker date stamped 1931
33-026649	CA-RIV-12550	Historic-period	Structural remains
SR 60		Built Environment	defined by edge of Caltrans ROW for length of Project Area

Applied EARTHWORKS Inc.

133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107-3414
(626) 578-0119

April 7, 2017

Ms. Stephanie N. Standerfer
Vice President
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Transmitted via email to stephanie.standerfer@webbassociates.com

RE: Paleontological Resource Assessment for the City of Beaumont General Plan Update Project, City of Beaumont, Riverside County, California

Dear Ms. Standerfer:

At the request of Albert A. Webb Associates, on behalf of the City of Beaumont, Applied EarthWorks, Inc. (Æ) performed a paleontological resource assessment for the City of Beaumont General Plan Update Project (Project) in the City of Beaumont (City), Riverside County, California. The scope of work included a museum records search, a literature and geologic map review, and preparation of this technical memorandum (memo). This memo, which serves as a summary of our findings, was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010) and will satisfy the requirements of the California Environmental Quality Act (CEQA).

Project Description

The Project is located within the City of Beaumont and Sphere of Influence (SOI) in north-central Riverside County, approximately 70 miles east of downtown Los Angeles, within the San Gorgonio Pass region along Interstate 10 (I-10) and State Route 60 (SR 60). Specifically, the Project is mapped within portions of Township 2 South, Range 1 West, Sections 24-36; Township 2 South, Range 2 West, Sections 44-36; Township 3 South, Range 1 West, Sections 1-28 and 32-36; Township 3 South, Range 1 East, Sections 19 and 30-31; Township 3 South, Range 2 West, Sections 1-3 and 12-13; Township 4 South, Range 1 East, Section 6; and Township 4 South, Range 1 West, Sections 1-4 and 10-11 on the El Casco, San Jacinto, and Beaumont, CA 7.5-minute U.S. Geological Survey quadrangles (Attachment A).

According to the City of Beaumont (2006), the Project proposes to "establish a comprehensive vision for buildout of the General Plan Area [1-2]" and "acknowledge and comprehensively address (the) combined environmental effects of existing development within the General Plan Area [3-2]" through "amended and more fully articulated General Plan Update Goals, Policies, and Implementation Programs [3-5]". The specific ground disturbances of a given undertaking governed under the policies of the General Plan Update are unknown at this time; however, a variety of ground-disturbing activities are expected to occur during developments under the General Plan Update, which may include mass grading, excavation, trenching, auguring, among other construction activities. This technical memorandum was prepared in order to demonstrate CEQA compliance and in order to satisfy the environmental reporting requirements of the City.

Regulatory Context

Paleontological resources cannot be replaced once they are destroyed. Therefore, paleontological resources are considered nonrenewable scientific resources and are protected under CEQA. Specifically, in Section V(c) of Appendix G of the CEQA Guidelines, the "Environmental Checklist Form," the question is posed: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" In order to determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, mitigation of adverse impacts to paleontological resources is mandated by CEQA. In addition, paleontological resources are addressed under the Multipurpose Open Space Element of the Riverside County General Plan (2008), policies OS 19.8 and 19.9, which state the following:

1. **OS 19.8:** Whenever existing information indicates that a site proposed for development may contain biological, paleontological, or other scientific resources, a report shall be filed stating the extent and potential significance of the resources that may exist within the proposed development and appropriate measures through which the impacts of development may be mitigated;
2. **OS 19.9:** When existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department documenting any paleontological [County of Riverside Planning Department, 2008, p. OS-37].

The City of Beaumont (2007) General Plan does not have policies that specifically address the treatment of paleontological resources; however, the City does set forth an Implementation Program for cultural resources, including paleontological resources, that is intended to aid in enacting the City's land use and development policies. The cultural resources implementation policy states should "paleontological resources be encountered during excavation and grading activities, all work would cease until appropriate salvage measures are established" in accordance with CEQA guidelines.

Paleontological Resource Potential

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by the SVP (2010) to determine the course of paleontological mitigation for a given project. These guidelines establish protocols for the assessment of the paleontological resource potential of underlying geologic units and outline measures to mitigate adverse impacts that could result from project development. Using baseline information gathered during a paleontological resource assessment, the paleontological resource potential of the geologic unit(s) (or members thereof) underlying a Project area can be assigned to one of four categories defined by SVP (2010). These categories include high, undetermined, low, and no paleontological resource potential.

Methodology

In order to assess whether a particular project area has the potential to contain significant fossil resources at the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered to be "sensitive" for paleontological resources if they are known to contain significant fossils anywhere in their extent. Therefore, a search of pertinent local and regional museum repositories for paleontological localities within and nearby the project area is necessary to determine whether fossil localities have been previously discovered within a particular rock unit. For this Project, a museum records search was conducted at the Los Angeles County Museum of Natural History (LACM) on April 6, 2017.

Resource Context

The Project area is located within the San Gorgonio Pass region of Southern California, south of the San Bernardino Mountains, within the San Jacinto Mountains of the Peninsular Ranges geomorphic province of California (Norris and Webb, 1976). The northwest-southeast oriented Peninsular Ranges extend 125 miles from the Los Angeles Basin to the tip of Baja California. The Peninsular Ranges are bounded by the Elsinore fault zone and Colorado Desert and on the east and the Pacific Coast on the west (Morton and Miller, 2006). The geology in the northern reaches of the range, including the San Jacinto Mountains, consists of Paleozoic banded gneiss, schist, and other older metamorphic rocks; Mesozoic granitic rocks of the southern California batholith; and Cenozoic marine, terrestrial, and Quaternary alluvium deposits. The Project area is situated within the San Jacinto Mountains Block; a relatively low-relief, triangular structural unit between the San Andreas and San Jacinto fault zones that has been uplifted and deformed largely due to movement along the San Jacinto fault (Morton and Miller, 2006). The highest point in the range is San Jacinto Peak at 10,805 feet (Norris and Webb, 1976). The region surrounding the City of Beaumont is a geologically complex area, in part due to movement along the San Andreas fault, Banning fault, San Gorgonio fault, and others (Lancaster et al., 2012; SCEDC, 2013; Yule, 2009).

The Project area is mapped at a scale of 1:24,000 by Dibblee and Minch (2003a-c) and 1:100,000 by Morton and Miller (2006) and Lancaster et al. (2012). According to these published geologic maps, the Project area is underlain by geologic units exposed within the narrow faulted plain of the San Gorgonio Pass, the San Timoteo Badlands, and the rocky highlands of the San Jacinto Mountains. Geologic units include Mesozoic and older granitic and metamorphic bedrock that have a very low paleontological resource potential due to the heat and pressure of their formation; paleontologically sensitive deposits of the Mount Eden Formation, San Timoteo Formation, and Pleistocene alluvium; and, recent surficial alluvial fan and valley deposits, that have low paleontological sensitivity. The geology and paleontology of these units is described below and depicted in Attachment A.

San Timoteo and Mount Eden Formations

The paleontologically sensitive San Timoteo Formation (QTst) and Mount Eden Formation (Tme) are exposed within the San Timoteo Badlands in the eastern and southern portions of the City of Beaumont and SOI (Morton and Miller, 2006). The Mount Eden Formation and San Timoteo Formation were first described by Frick (1921) after their type localities in nearby San Timoteo Canyon (May and Repenning,

1982). The late Miocene to Pliocene Mount Eden Formation is composed of a reddish brown, massive to indistinctly bedded pebbly sandstone and basal conglomerate with decomposed clasts locally derived from Peninsular Ranges basement rocks; thick and indistinctly bedded, moderately to well-indurated, pale tan to reddish brown or gray coarse-grained arkose; local interbeds of fine-grained sandstone and siltstone, including grayish calcareous siltstone; and rare shale laminae (Albright, 1999; Morton and Miller, 2006). Below the Mount Eden Formation, the Pliocene to middle Pleistocene San Timoteo Formation is composed of a basal dark gray-green, fissile mudrock; well bedded, fine-to coarse-grained, moderately to poorly indurated and sorted, tan-brown to gray-yellow lithic arkose; and subordinate pebble and cobble conglomerate deposits composed of subangular to subrounded lithics. The San Timoteo Formation and Mount Eden Formations together are up to 6,000 feet thick in the San Timoteo badlands and is exposed for approximately 20 miles along the San Jacinto fault (Albright, 1999; Morton and Miller, 2006).

The Mount Eden and San Timoteo Formations have yielded an abundant and diverse fauna that includes at least 30 mammalian and reptilian species and hundreds of fossil specimens. Three local faunas have been described from within these deposits, including the Mount Eden Local Fauna [LF] (late Hemphillian North American Land Mammal Age [NALMA]), El Casco LF (Late Blancan/ Irvingtonian NALMA) and Shutt Ranch LF (Irvingtonian NALMA) (Albright, 1999; Woodburne, 2013), which consist of approximately 15 taxa including, cottontail rabbit, pack rat, kangaroo rat, deer mouse, pocket mouse, vole, lemming, dog, rhinoceros, numerous artiodactyls, lizards, and snake, and the latter which includes rodent taxa (Albright, 1999; Repenning, 1987). The fossils recovered from within the Mount Eden and San Timoteo formations are important because they not only provide a more complete fossil record for a tectonically active California during the Late Cenozoic, they constrain dates and assist with magnetostratigraphy, paleogeography, paleoclimate reconstructions, and timing of pre-historic faunal migrations (Albright, 1999). In addition to the Mount Eden LF, El Casco LF, and Shutt LF, fossil specimens from more than 20 mammal species have been recovered from numerous localities within these deposits in the San Timoteo badlands, including taxa of horse, rabbit, rodent, mammoth, deer, camel, ground sloth, horse, and turtle (UCMP online database, 2017).

Quaternary (Pleistocene to Holocene) Surficial Deposits

A large portion of the central Project area is immediately underlain by Pleistocene alluvial fan (Qof, Qvof) and valley (Qoa) deposits. These deposits, referred to as *Quaternary older* and *very old alluvium* disconformably overlie Cretaceous granitic bedrock (gr) and Mesozoic metamorphic intrusive rocks (pKm) at an unknown but likely relatively shallow depth (plutonic igneous rocks and high- to medium-grained metamorphic do not contain fossils due to the high heat and pressure of their formation deep below the surface of the Earth). In general, the alluvial sediments are composed of tan to reddish-brown sandstone and siltstone that was deposited in alluvial fan and local channel environments during the Pleistocene. The deposits are moderately consolidated and poorly indurated, with angular to subangular clasts, local pebble conglomerate lenses, moderate soil formation, and abundant dissection (Morton and Miller, 2006).

Pleistocene age alluvial, fluvial, and lacustrine deposits have proven to yield scientifically significant paleontological resources throughout Southern California from the coastal areas to the inland valleys. South of the Project area, in the vicinity of Lakeview, a diverse assemblage of fossil resources has been

recovered including mammoth, sabre-toothed cat, horse, bison, and numerous small mammals, reptiles, invertebrates, and plant remains (Springer et al., 2009). Further south of the Project area, the largest known open-environment non-asphaltic late Pleistocene fossil assemblage has been documented in Diamond and Domenigoni valleys. Discovered during excavations of the Diamond Valley Lake, this locality has yielded nearly 100,000 identifiable fossils representing over 105 vertebrate, invertebrate, and plant taxa. The vertebrate taxa recovered includes reptiles such as frogs, turtles, and lizards; birds such as robins, swallows, jays, ravens, hawks, and ducks; small mammals such as rabbit, squirrel, mice, and weasels; and large mammals such as fox, bear, coyote, deer, bison, mammoths, mastodons, and ground sloths (Springer et al., 2009). The invertebrate taxa recovered includes ostracodes, snails, termites, slugs, beetles, and bivalves and the plant taxa recovered includes well preserved diatoms, pollen, and wood debris.

Recent alluvial fan (Qf, Qyf), valley (Qa, Qya), wash (Qw), and landslide (Qls) deposits are common throughout the Project area (Lancaster et al., 2012; Morton and Miller, 2006). The younger Quaternary alluvium generally consists of gravel, sand, and clay deposited during the Holocene restricted to valley, gully, wash, and landslide areas. Holocene-age alluvial deposits, particularly those younger than 5,000 years old, are generally too young to contain fossilized material (SVP, 2010), but they may overlie sensitive older deposits at an unknown depth.

Records Search Results

LACM collection records contain two previously recorded localities (LACM 6596 and 65235) directly within the Project boundary from within the San Timoteo Formation. At least 15 additional vertebrate localities (LACM 4540, 5168, 6059, 7618-7622, 1118-1119, 5377, 1120, (CIT) 132-133, and (CIT) 515, have been previously recorded in the vicinity of the Project area from within the Mount Eden Formation, San Timoteo Formation, and Pleistocene alluvial deposits (McLeod, 2017). These localities yielded vertebrate fossil specimens of horse, camel, mastodon, deer, rhinoceros, and fish, depth of recovery unreported (McLeod, 2017). In addition, localities LACM 1014 and 1016, recovered within the western Project area, produced two type specimens of fossil cones of the pine (*Pinus pretuberculata* and *P. hazeni*) and fir tree (*Pseudotsuga premacrocarpa*), as well as apricot tree (*Prunus prefremontii*) and algae plant fossils. The LACM did not provide specific geographic coordinates for the localities within the Project area or vicinity. The results of the museum records search are summarized in Table 1.

Findings and Recommendations

Based on the literature review and museum records search results, the paleontological sensitivity of the Project area was determined in accordance with the SVP's (2010) sensitivity scale. The Mount Eden Formation, San Timoteo Formation, and Pleistocene alluvial deposits are determined to have a high paleontological resource potential because the geologic units have proven to yield significant vertebrate fossils in the vicinity of the Project area and elsewhere (McLeod, 2017). Younger Quaternary alluvial deposits of Holocene age mapped at the surface of the Project area have a low potential to contain intact paleontological resources because they are typically too young to contain fossilized remains.

As a result of the high paleontological resource potential in the Project area, further paleontological resource management, including a field reconnaissance survey of the Project area and construction

Table 1
Vertebrate Localities within the City of Beaumont and the Vicinity of the Project Area

Locality No.	Geologic Unit	Age	Taxa
LACM 1118-1119, 5377	Mount Eden Formation	Miocene-Pliocene	Camelidae (camel), Cervidae (deer), Equidae (horse), and *Teleoceras hicksis* (rhinoceros)
LACM 1120	Mount Eden Formation	Miocene-Pliocene	*Pliauchenia merriami* and *Titanotylopus sp.* (camels)
LACM 7618-7622; LACM (CIT) 132-133, 515	San Timoteo Formation	Plio-Pleistocene	*Equus* (horse) and Camelidae
LACM 6596	San Timoteo Formation	Plio-Pleistocene	*Pliomastodon sp.* (mastodon)
LACM 65235	San Timoteo Formation	Plio-Pleistocene	fish
LACM 4540, 5168, 6059	Pleistocene Alluvium	Pleistocene	*Equus*

Source: McLeod (2017)

monitoring during ground disturbance in the highly sensitive Mount Eden Formation, San Timoteo Formation, and Pleistocene alluvial deposits, is recommended (refer to Attachment B for paleontological sensitivity in the Project area). Our management recommendations for programmatic-level mitigation measures and General Plan policies related to paleontological resources are presented below.

Management Recommendations

In general, the potential for a given project to result in adverse impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project. Since this Project entails a General Plan Update, new ground disturbances related to the development of commercial space and residential housing are anticipated. The specific ground disturbances of a given undertaking governed under the policies of the General Plan Update are unknown at this time; however, they will occur within the boundary of the Project area, which is underlain by sedimentary deposits with a low to high potential for buried paleontological resources. As a result, several Programmatic-level management recommendations are set forth, that if implemented as policies within the Beaumont General Plan Update, would reduce adverse impacts to paleontological resources to a less than significant level pursuant to the requirements of CEQA. The following measures have been used by professional paleontologists for many years and have proven to be effective in reducing or eliminating adverse impacts to paleontological resources as a result of private and public development projects throughout California.

- **Worker's Environmental Awareness Training.** Prior to the start of construction within a given development site within the Project area, all field personnel should be briefed regarding the types of fossils that could be found and the procedures to follow should paleontological resources be encountered. This training should be accomplished at the pre-grade kick-off meeting or morning

tailboard meeting and should be conducted by a Qualified Paleontologist, as defined by SVP (2010) guidelines. Specifically, the training should provide a description of the fossil resources that may be encountered, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Qualified Paleontologist and on-site monitor(s). The training should be developed by the Qualified Paleontologist and may be conducted concurrent with other environmental training (e.g., cultural and natural resources awareness training, safety training, etc.).

- **Pre-Construction Survey**. It is recommended that prior to any ground-disturbing activities, a Qualified Paleontologist be retained to conduct a field reconnaissance survey of any development site within the Project area that is underlain by a geologic unit with high paleontological sensitivity. The purpose of the field survey will be to visually inspect the ground surface for exposed fossils or traces thereof and to evaluate geologic exposures for their potential to contain preserved fossil material at the subsurface. Particular attention should be paid to rock outcrops and any areas where geologic sediments are well exposed. All fossil occurrences observed during the course of fieldwork, significant or not, should be adequately documented and recorded at the time of discovery. The data collected for each fossil occurrence should include, at minimum, the following information: Universal Transverse Mercator (UTM) coordinates, approximate elevation, description of taxa, lithologic description, and stratigraphic context (if known). In addition, each locality should be photographically documented with a digital camera. If feasible, with prior consent of the land owner(s), all significant or potentially significant fossils should be collected at the time they are observed in the field, pursuant to SVP (2010) guidelines.

- **Construction Monitoring**. Prior to the commencement of ground-disturbing activities, a Qualified Paleontologist will be retained to prepare and implement a Paleontological Resource Impact Mitigation Program (PRIMP) for any development site or undertaking in the Project area that plans to disturb geologic units with a high paleontological resource potential. Full-time monitoring is recommended for construction activities (e.g., grading, excavation, ripping, trenching, etc.) that will disturb previously undisturbed deposits determined to have a high paleontological sensitivity (i.e, the Mount Eden Formation [Tme], San Timoteo Formation [QTst], and Pleistocene alluvial fan [Qof, Qvof] and valley [Qoa] deposits), in accordance to criteria set forth by SVP (2010). Monitoring should not be required in highly sensitive units during auguring of less than 1 foot in diameter, or in areas of previous disturbance or soil development, as determined by the Qualified Paleontologist. In addition, spot checking may also occur at the discretion of the Qualified Paleontologist in areas underlain by younger Quaternary alluvial deposits (Qa, Qya, Qf, Qyf, Qw, Qls) in order to determine if underlying sensitive geologic units are being impacted by construction, and at what depth.

  Monitoring should include the visual inspection of excavated or graded areas, trench sidewalls, spoils, and any other disturbed sediment. In the event that a paleontological resource is discovered, the approved paleontological monitor will have the authority to divert temporarily the construction equipment around the find until it is assessed for scientific significance and collected. In areas of high sensitivity, monitoring efforts can be reduced or eliminated at the discretion of the Qualified Paleontologist if no fossil resources are encountered after 50 percent

of the excavations are completed, or if buried crystalline bedrock, which has no paleontological resource potential, is encountered at depth within the area of excavation.

- **Fossil Preparation, Curation, and Reporting.** Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation will include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossils specimens will be identified to the lowest taxonomic level, cataloged, analyzed, and delivered to a regionally-accredited museum repository such as the Western Science Center, Raymond Alf Museum, or the Natural History Museum of Los Angeles County for permanent curation and storage. The cost of curation is assessed by the repository and is the responsibility of the land owner.

  At the conclusion of laboratory work and museum curation, a final report should be prepared describing the results of the paleontological mitigation monitoring efforts associated with the specific undertaking under the Project. The report will include a summary of the field and laboratory methods, an overview of the geology and paleontology within the development site, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If the monitoring efforts produced fossils, then a copy of the report will also be submitted to the curation facility.

It has been a pleasure assisting you with this Project. If you have any questions, please do not hesitate to contact me at hclifford@appliedearthworks.com or (626) 578-0119.

Sincerely,

Heather Clifford
Associate Paleontologist
Applied EarthWorks, Inc.

References

Albright, B. L., 1999, Magnetostratigraphy and biochronology of the San Timoteo Badlands, southern California, with implications for local Pliocene–Pleistocene tectonic and depositional patterns. Geological Society of America Bulletin, v. 111, no. 9, p. 1265-1293.

City of Beaumont, 2006, Revised Draft Environmental Impact Report, City of Beaumont General Plan Update, State Clearinghouse Number: 2004061001. Prepared by Applied Planning, Inc., Ontario, CA, December 2006.

_____, 2007, City of Beaumont General Plan, Approved March 2007. Available at http://www.ci.beaumont.ca.us/DocumentCenter/Home/View/63 (accessed March 2017).

County of Riverside, 2008, County of Riverside General Plan, Updated 2008, General Plan Amendment No. 960, Public Review Draft, March 2014, http://planning.rctlma.org/ZoningInformation/GeneralPlan.aspx (accessed March 2017).

Dibblee, T.W., Jr., and Minch, J.A., 2003a, Geologic map of the El Casco quadrangle, Riverside County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-113, scale 1:24,000.

_____, 2003b, Geologic map of the Beaumont quadrangle, Riverside County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-114, scale 1:24,000.

_____, 2003c, Geologic map of the San Jacinto quadrangle, Riverside County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-116, scale 1:24,000.

Frick, C., 1921, Extinct vertebrate faunas of the badlands of Bautista Creek and San Timoteo Cañon, southern California. University of California Publications, Bulletin of the Department of Geology, v. 12, p. 277–424.

Lancaster, J.T., Hayhurst, C.A., and T.L. Bedrossian, 2012, Preliminary geologic map of Quaternary surficial deposits in Southern California, Palm Springs 30’X 60’ Quadrangle. California Geological Survey Special Report 217, Plate 24.

May, S.R., and Repenning, C.A., 1982, New Evidence for the Age of the Mount Eden Fauna. Journal of Vertebrate Paleontology, v.2, no.1, p. 109-113.

McLeod, S.A., 2017, Unpublished museum collections records. Natural History Museum of Los Angeles County.

Morton, D.M. and Miller, F.K., 2006, Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey, Open-File Report OF-2006-1217, scale 1:100,000.

Norris, R.M., and Webb, R.W., 1976, Geology of California. John Wiley & Sons, New York.

Repenning, C. A., 1987, Biochronology of the microtine rodents of the United States *in* Woodburne, M. O., ed., Cenozoic mammals of North America, geochronology and biostratigraphy. Berkeley, University of California Press, p. 236–268.

SCEDC (Southern California Earthquake Data Center), 2013, San Andreas Fault Zone, Significant Earthquakes and Faults. Published by the Southern California Earthquake Center, http://www.data.scec.org/significant/sanandreas.html (accessed March 2017).

Society of Vertebrate Paleontology (SVP), 2010, Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.

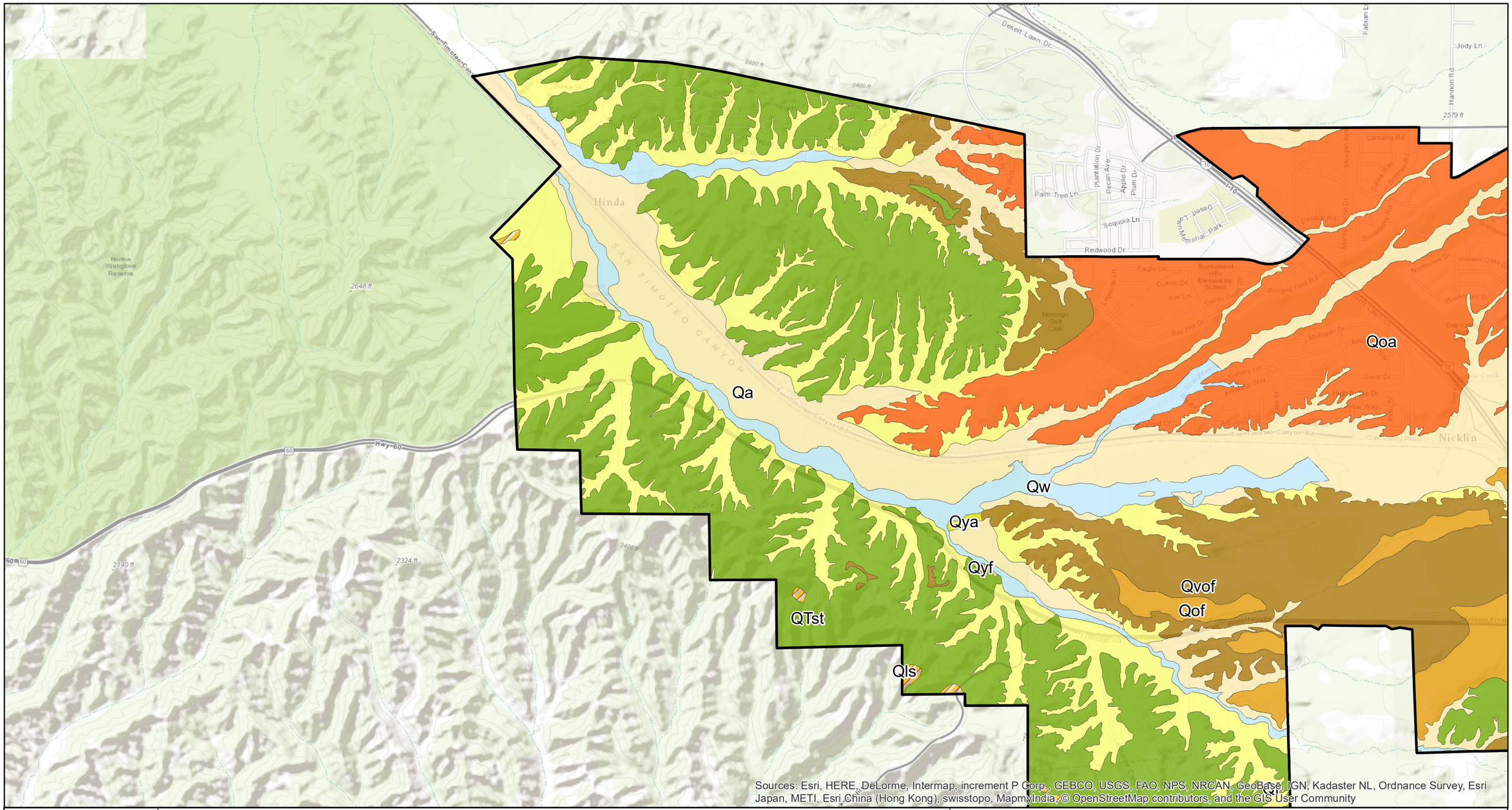
Springer, K. B., Scott, E., Sagebiel, J. C., and Scott, K. M., 1999, A late Pleistocene lake edge vertebrate assemblage from the Diamond Valley, Riverside County, California. Journal of Vertebrate Paleontology v. 19, no. 77A.

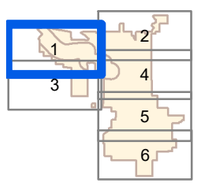
UCMP online database, 2017, Online Collections, Locality Search. University of California Museum of Paleontology, http://ucmpdb.berkeley.edu (accessed March 2017).

Woodburne, M. O., 2013, Global Events and the North American Mammalian Biochronology *in* Woodburne, M. O. ed., Late Cretaceous and Cenozoic Mammals of North America: Biostratigraphy and Geochronology. Columbia University Press, New York.

Yule, D., 2009, The Enigmatic San Gorgonio Pass. The Geological Society of America, Journal of Geology, February 2009, v. 37; no. 2; p. 191–192.

ATTACHMENT A
MAP OF GEOLOGICAL UNITS IN THE CITY OF BEAUMONT GENERAL PLAN UPDATE AREA





Legend

- Project Area
- Qa, Alluvial valley deposits, late Holocene
- Qw, Alluvial wash deposits, late Holocene
- Qf, Alluvial fan deposits, late Holocene
- Qls, Landslide deposits, Holocene
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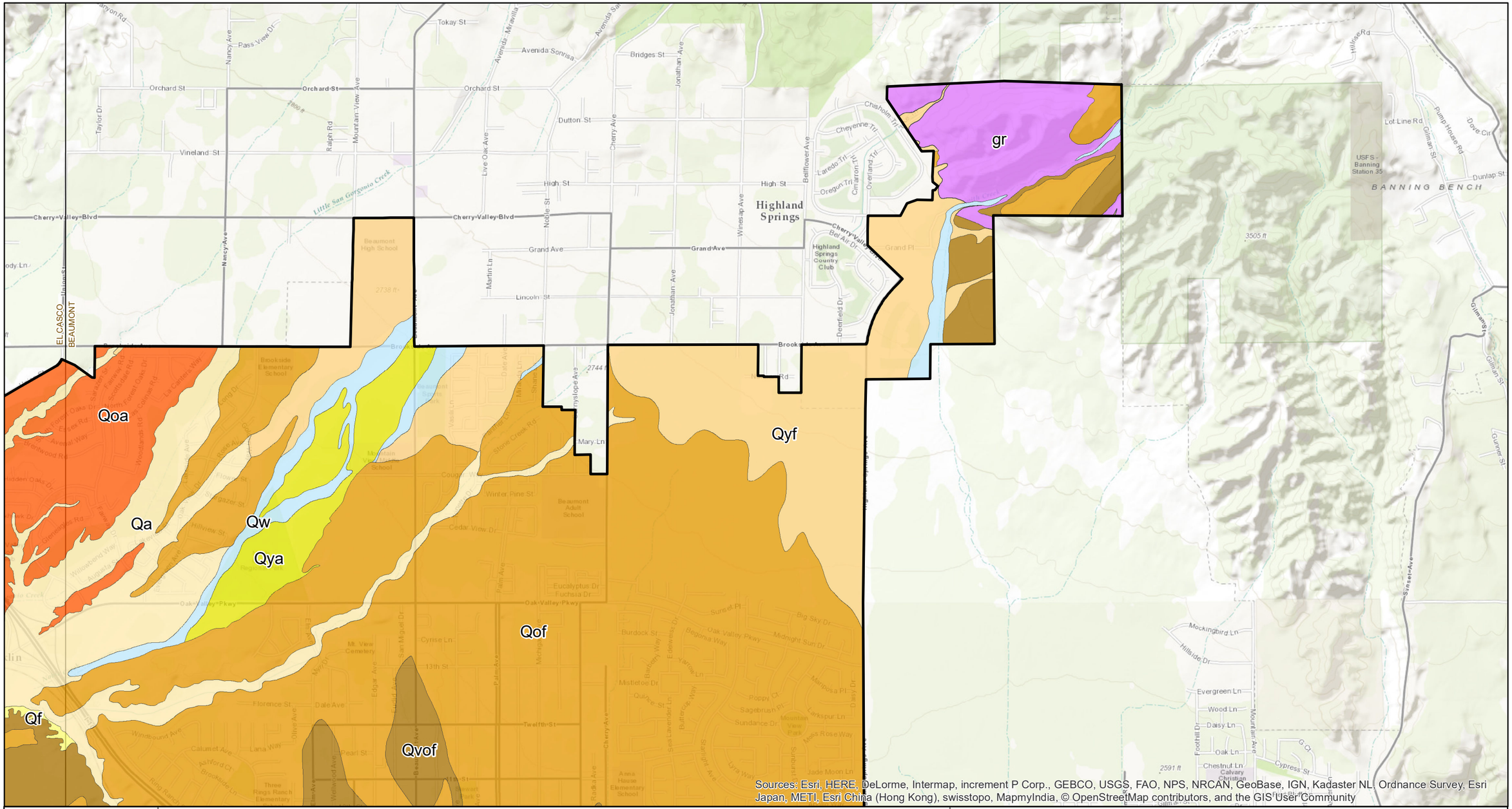
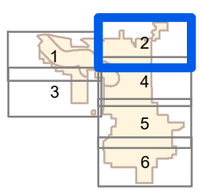
El Casco, CA 7.5' USGS Quadrangle
Geologic Units: Lancaster et al. (2012); Morton and Miller (2006)





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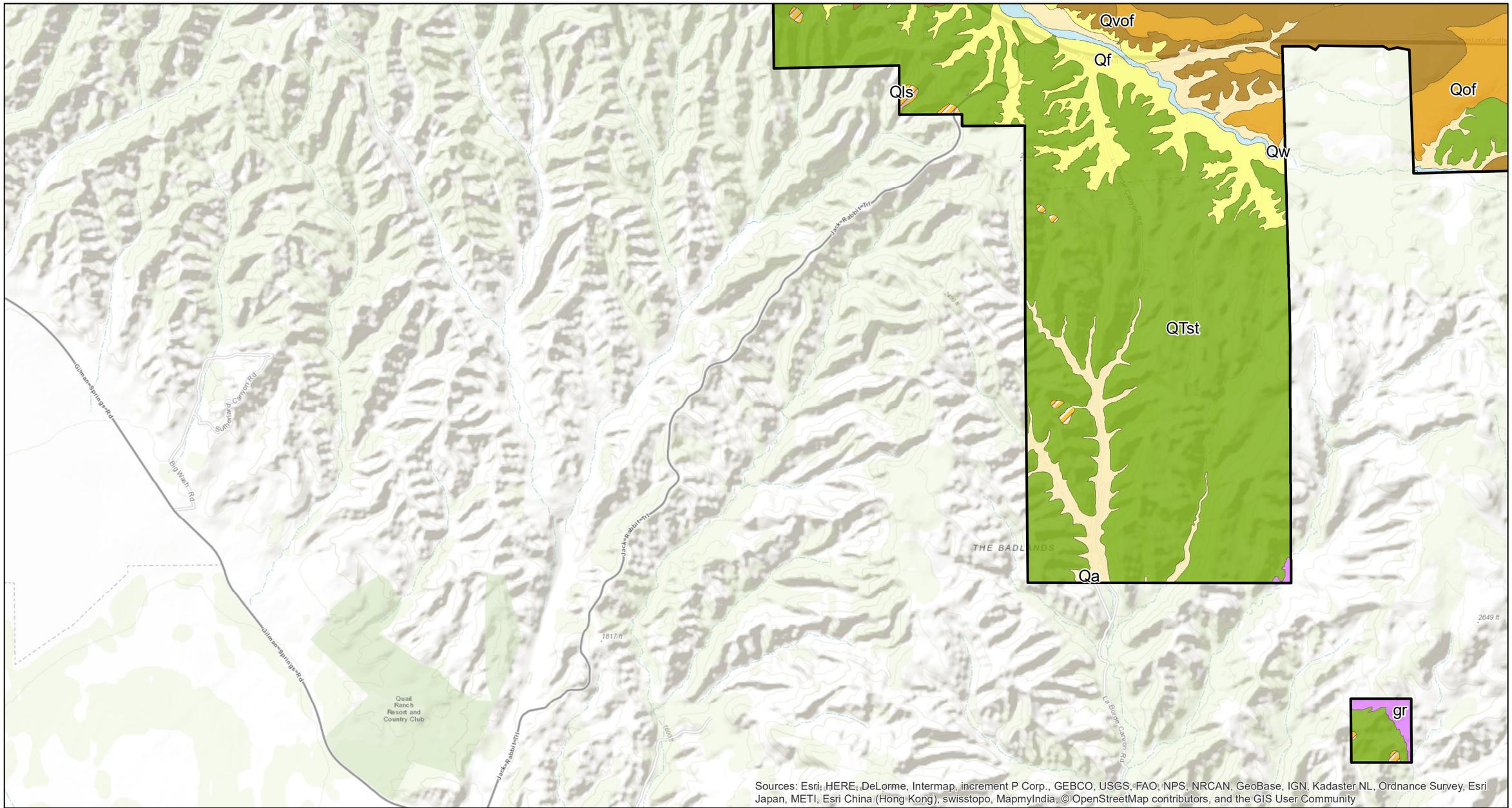

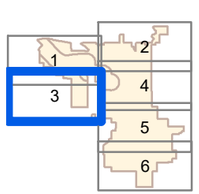

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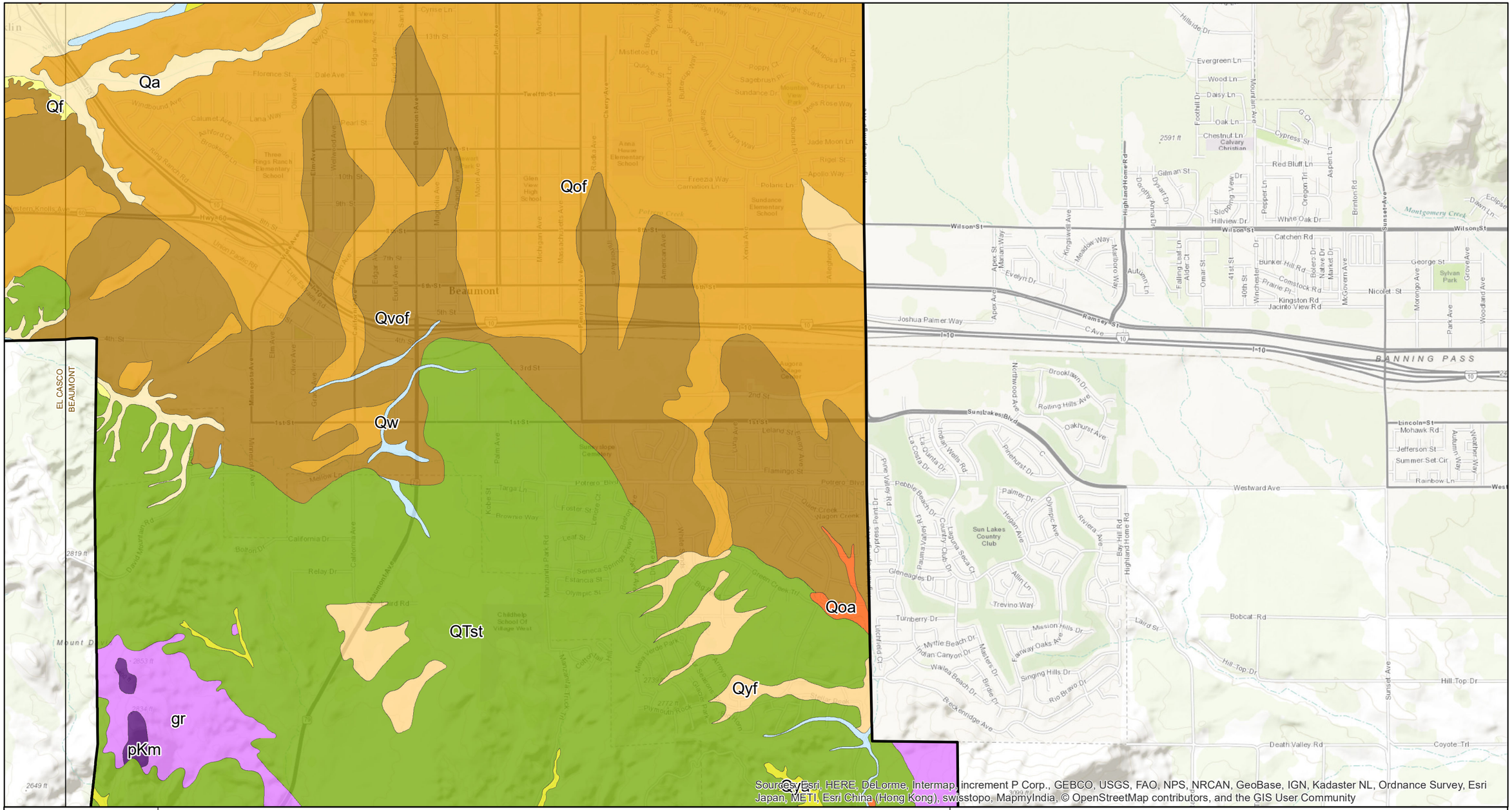

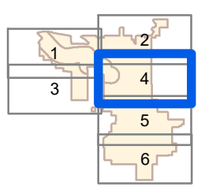

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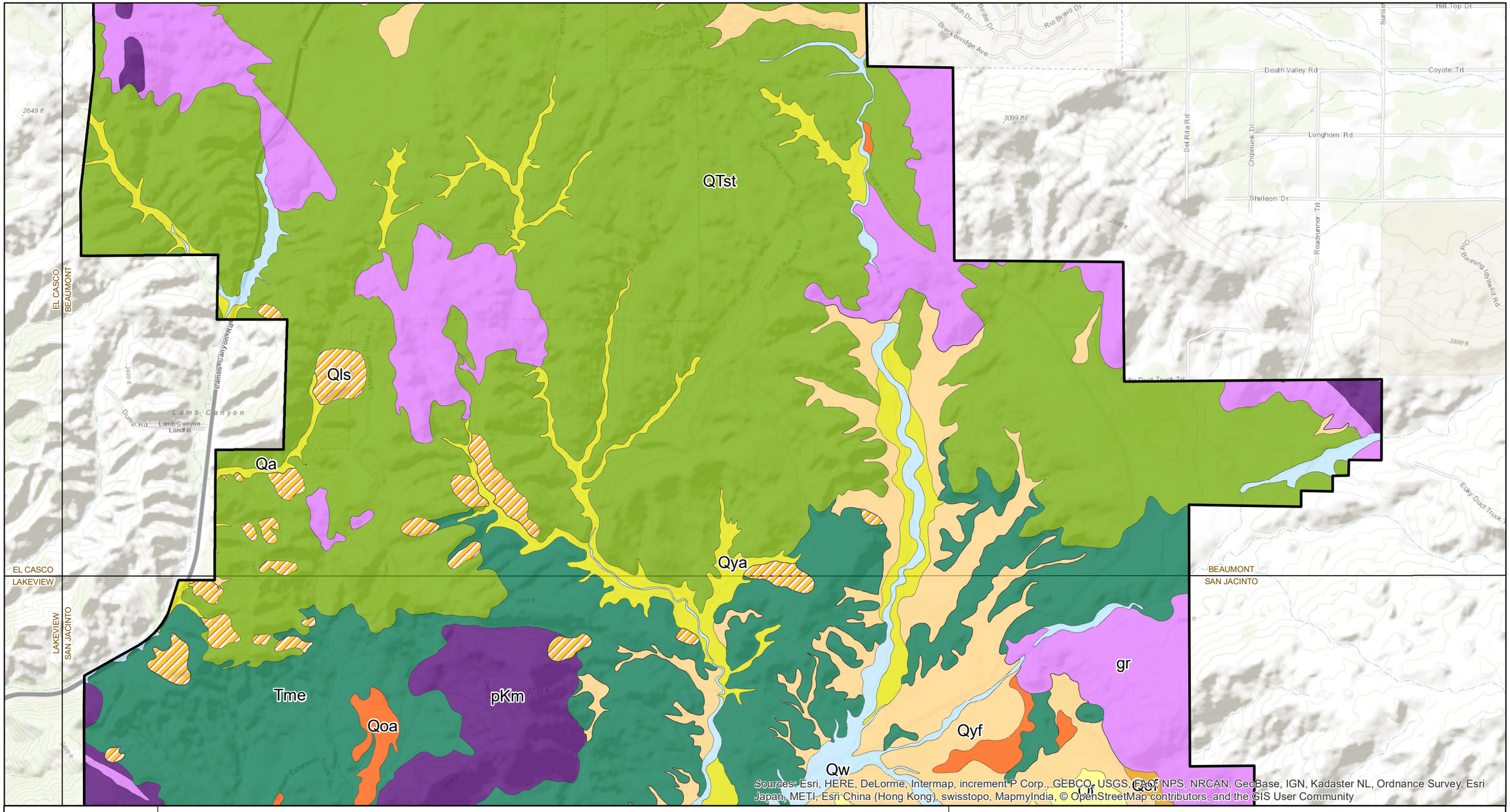

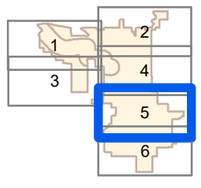

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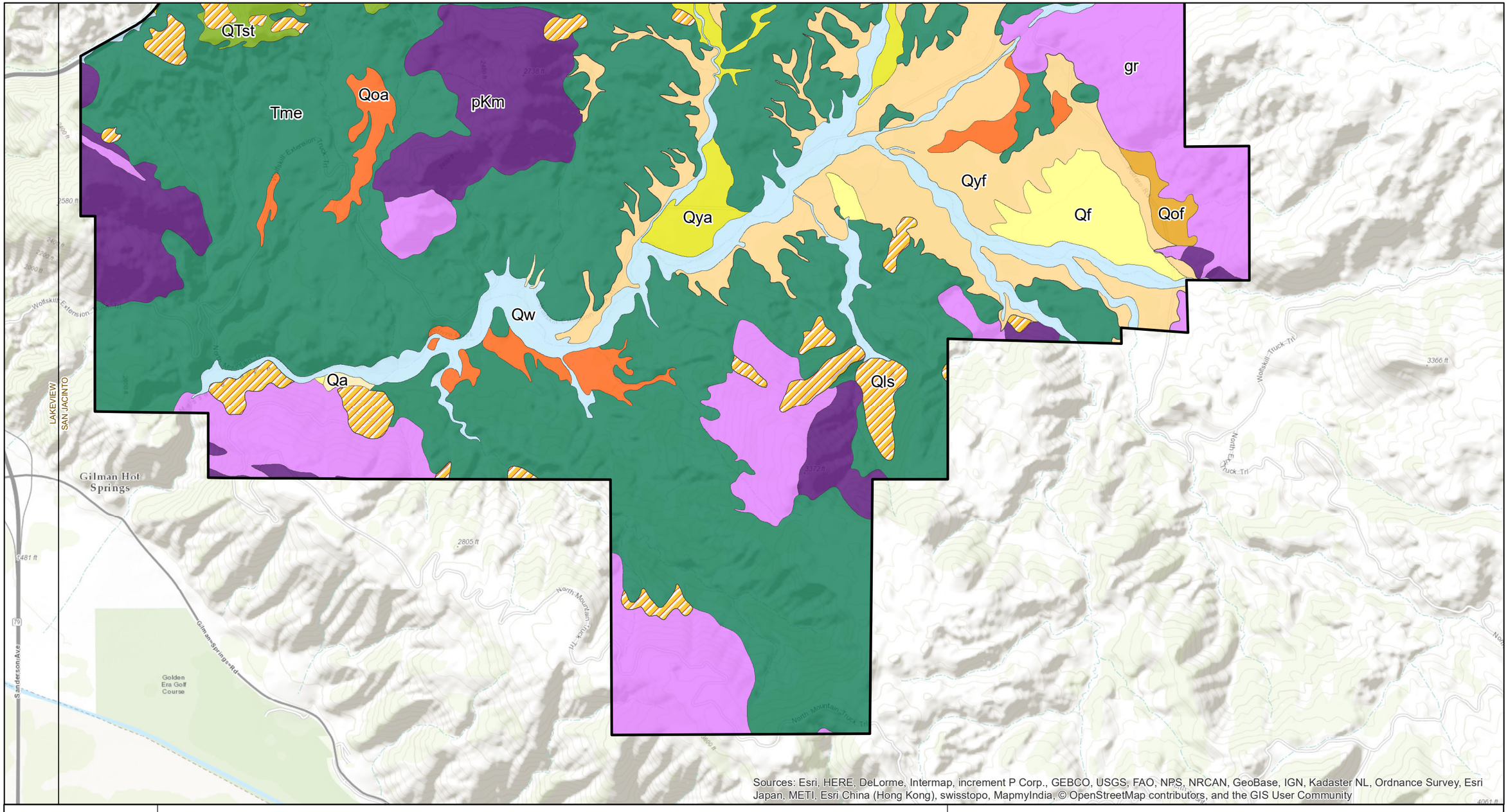
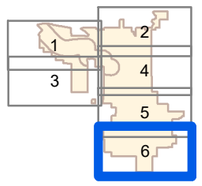


Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



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San Jacinto, CA 7.5' USGS Quadrangle
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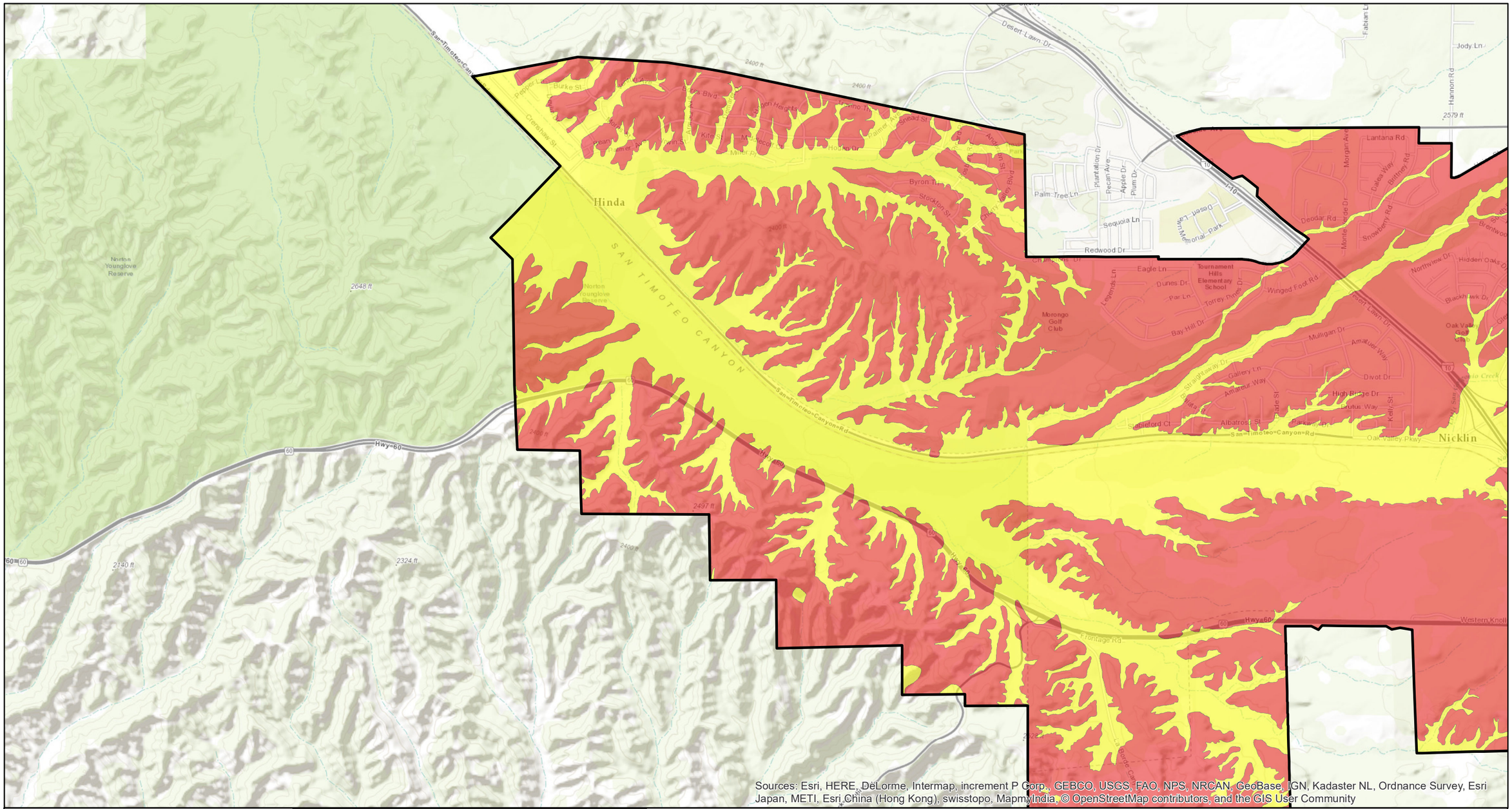
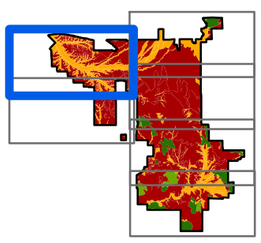
ATTACHMENT B
MAP OF PALEONTOLOGICAL SENSITIVITY IN THE CITY OF BEAUMONT GENERAL PLAN UPDATE AREA





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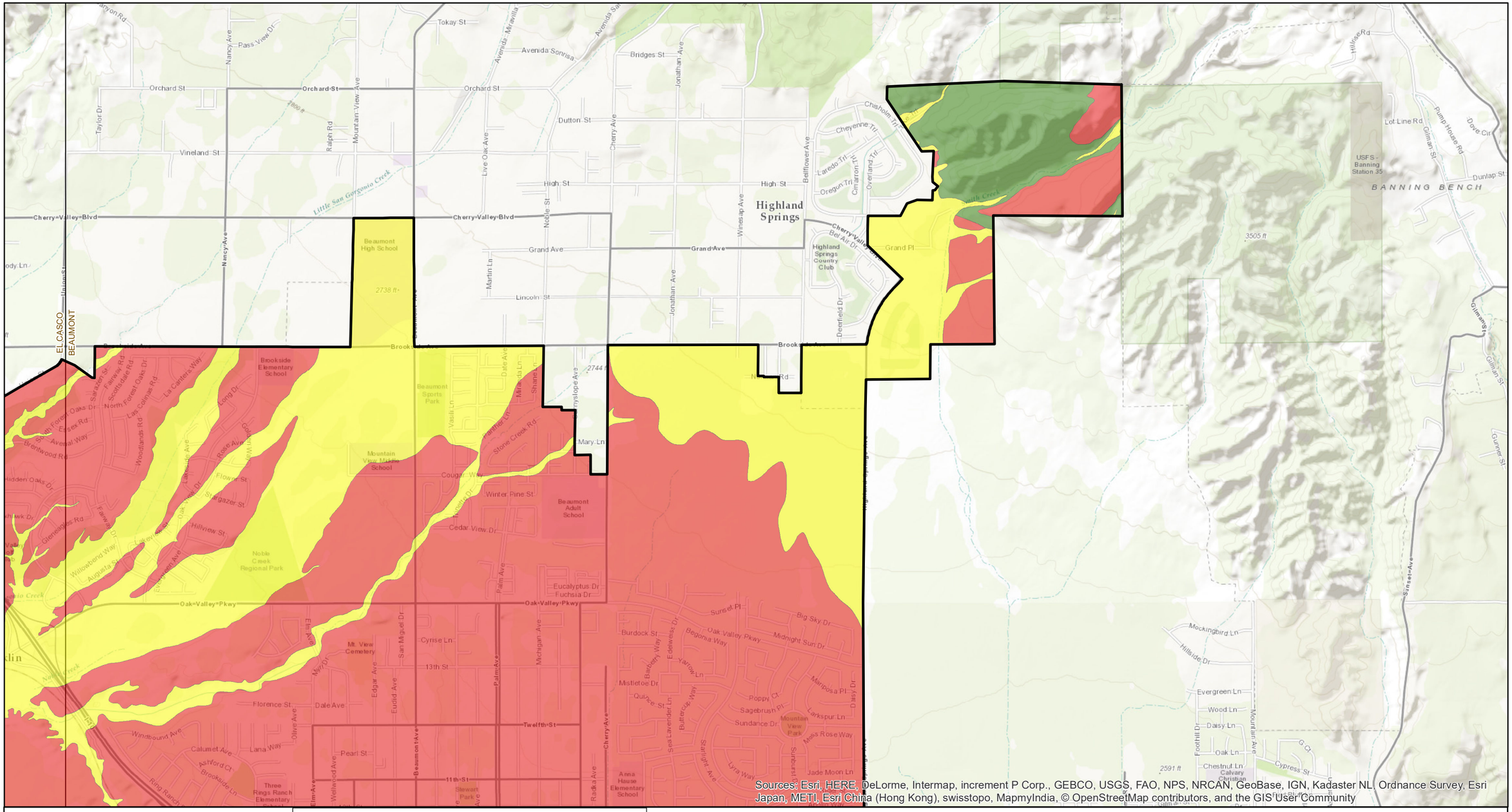
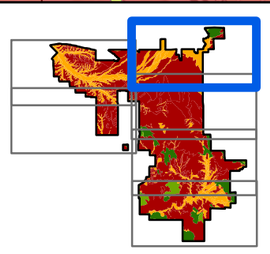
El Casco, CA 7.5' USGS Quadrangle

Paleontological Sensitivity in the City of Beaumont General Plan Update Project Area.





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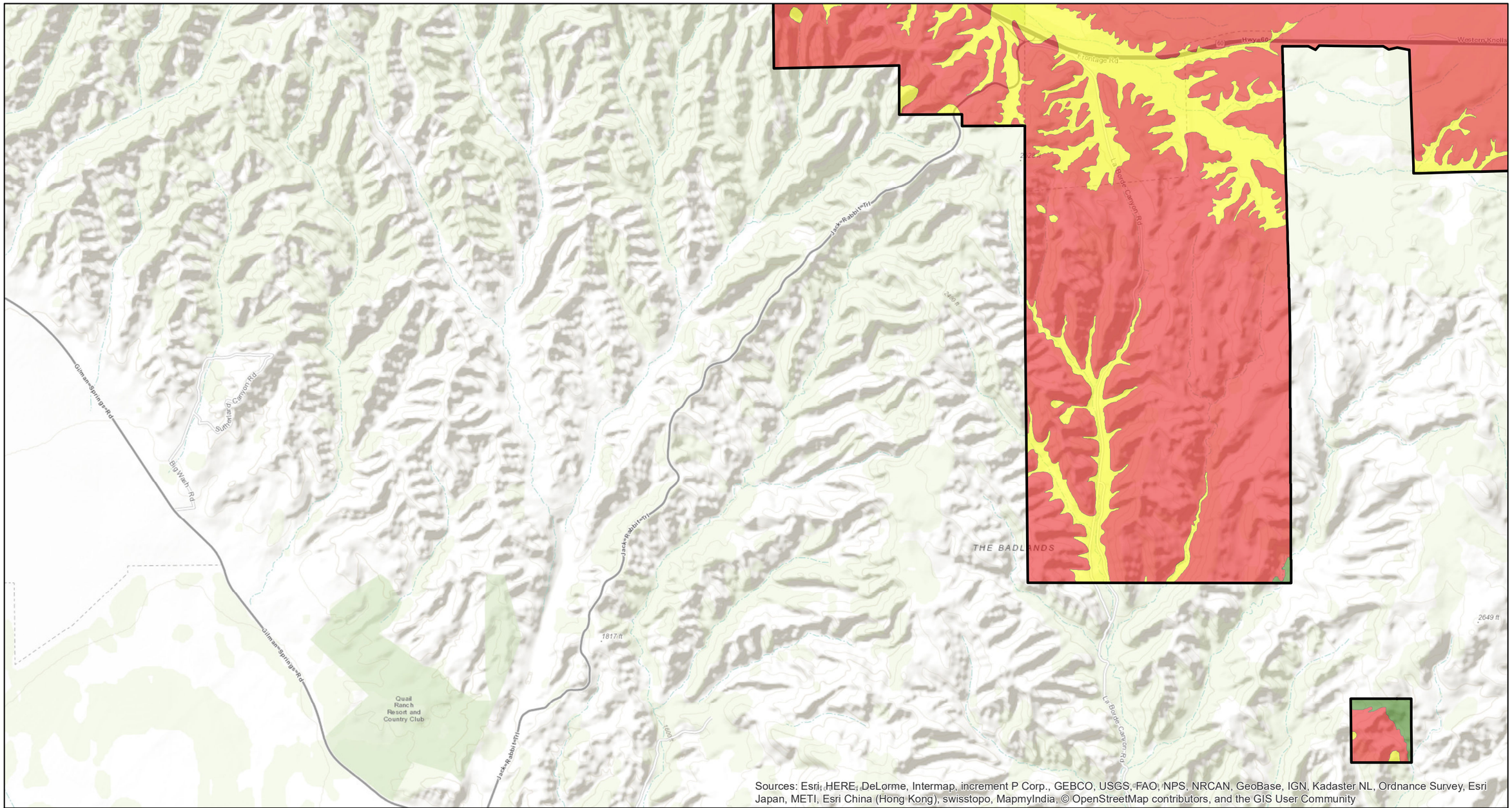

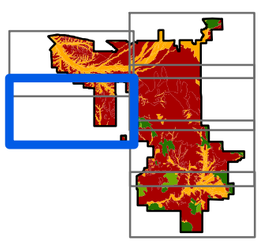

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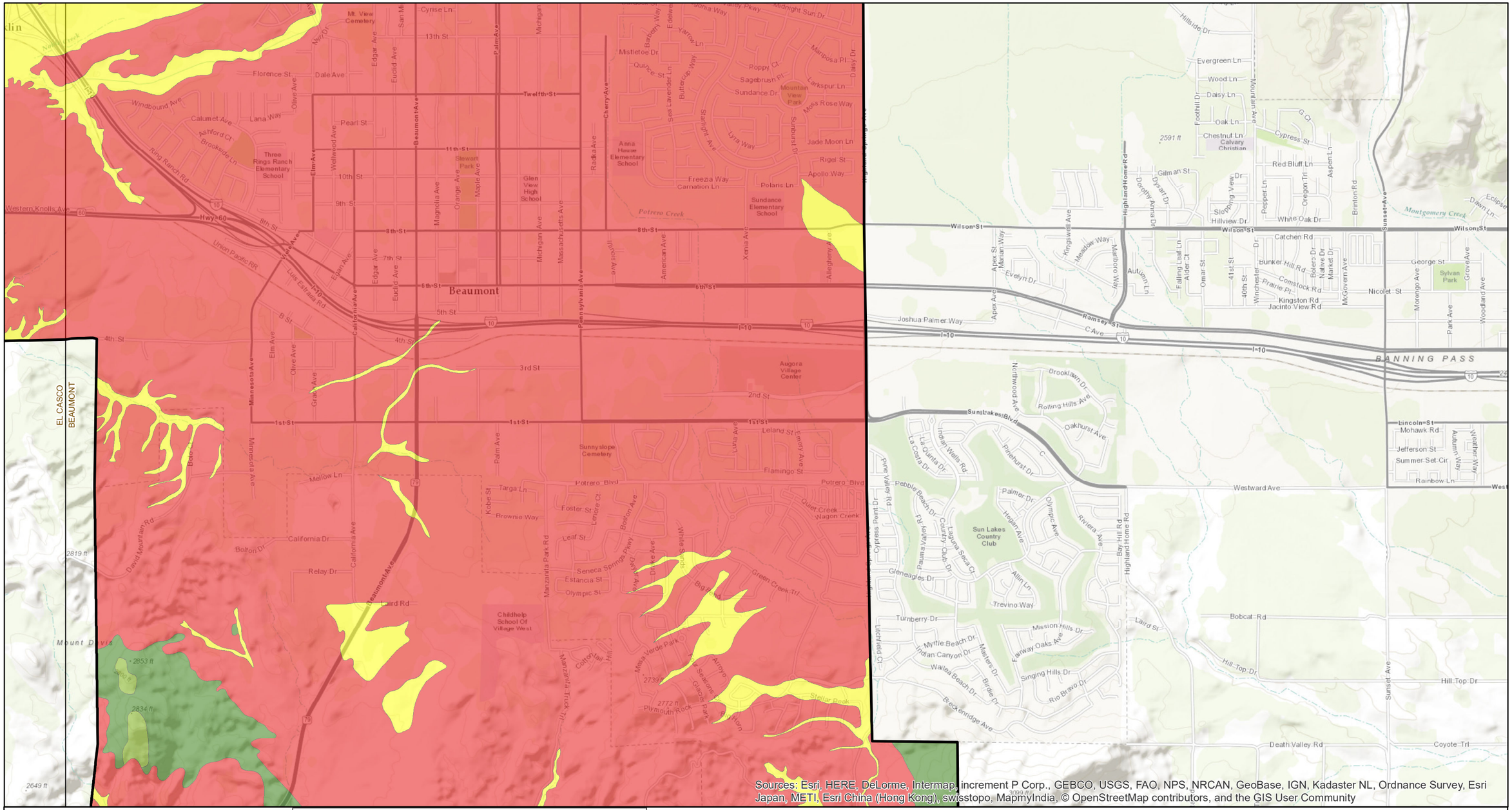

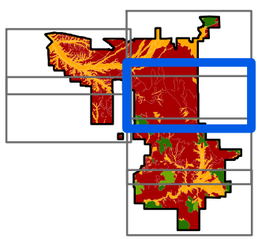

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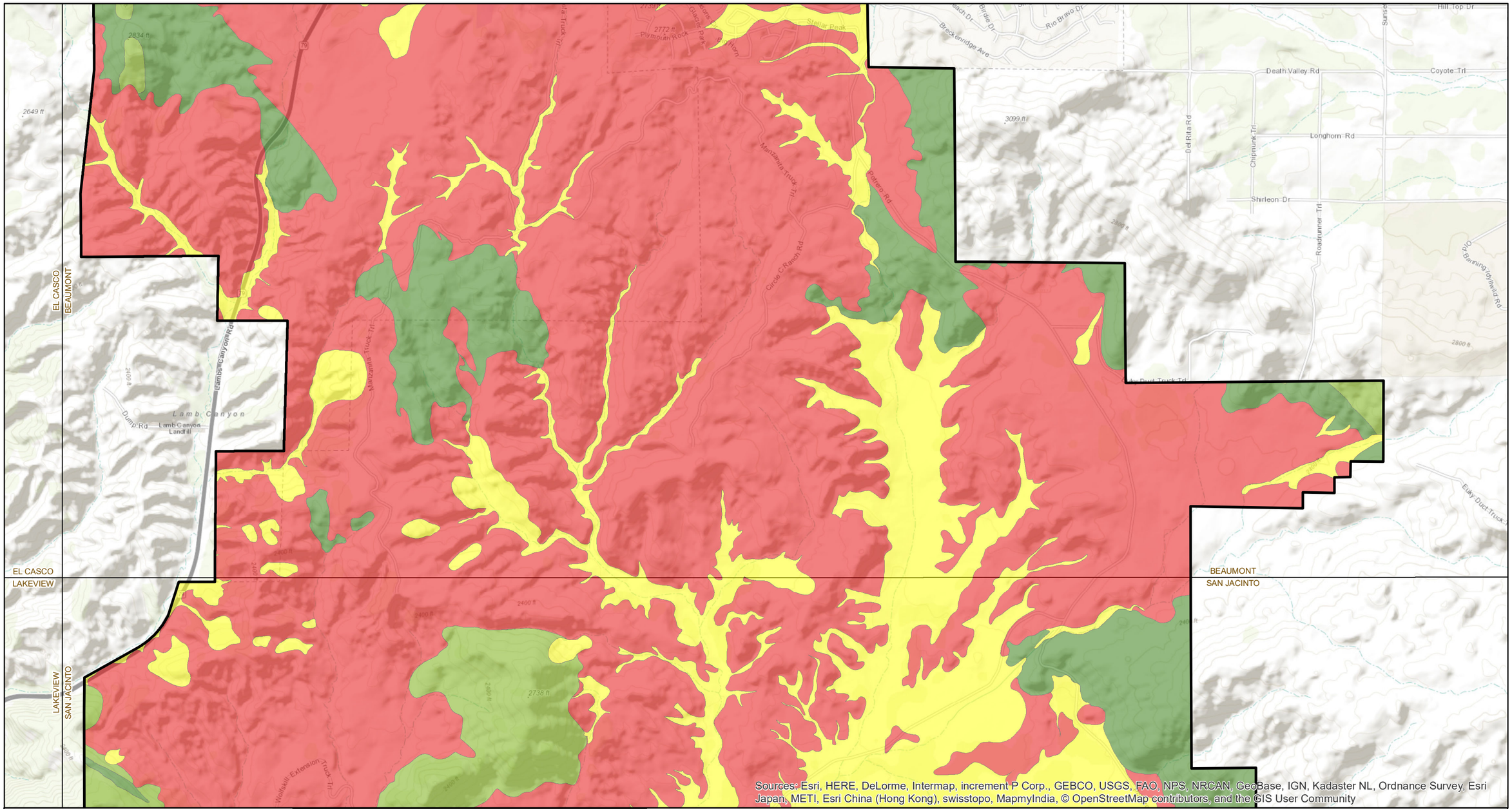

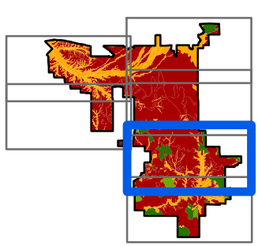

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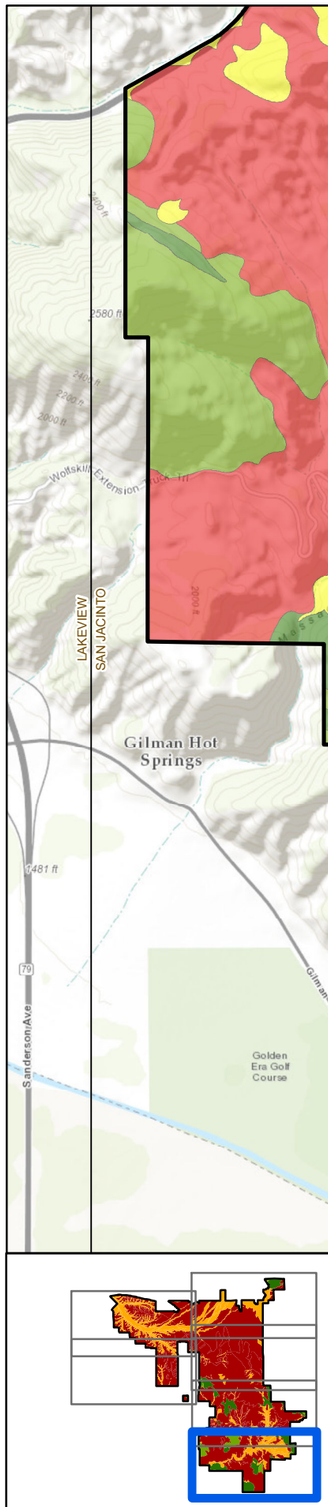

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Paleontological Sensitivity in the City of Beaumont General Plan Update Project Area.

Memo

To: City of Beaumont
From: Raimi + Associates
Date: 8/27/20
Re: General Plan Update EIR GHG Analysis Findings

The following memorandum summarizes the potential greenhouse gas impacts associated with population and job growth facilitated by the land use designations proposed under the General Plan Update (GPU) in 2040. In accordance with CEQA, this analysis evaluates the significance of project impacts in terms of: (1) whether, or not, the project would generate greenhouse gas (GHG) emissions that may have a significant impact on the environment; and (2) whether, or not, the project would conflict with any applicable policy, plan, or regulation intended to reduce GHG emissions.

Key Findings

- Total annual emissions of GPU in 2040 equal 709,218 $MTCO_2e$ and 4.3 $MTCO_2e$ per service population.
- Estimated 2040 emissions 4.3 $MTCO_2e$ per service population are greater than the calculated threshold of significance of 2.0 $MTCO_2e$ per service population. Therefore, emission mitigation measures will be required.

Approach + Methodology

Greenhouse Gas Emissions

Greenhouse gas emissions were calculated for the anticipated future growth in Beaumont. Forecast emission levels were estimated for 2040 using population, housing, and employment forecasts developed for the General Plan update and consistent with the Traffic Impact Analysis (TIA) and other EIR analysis (Table 1). Mobile source emissions were estimated based on daily vehicle miles traveled (VMT) data from the TIA, and the CARB EMFAC emissions factor model was used to estimate vehicle emissions associated with VMT. These estimates include the effects of existing State and city regulations, representing an "Adjusted Business-as-Usual" forecast. The forecast accounts for implementation of State programs to reduce emissions locally (e.g., Assembly Bill 1493, Senate Bill 100, and incremental improvements in Title 24) and of existing local programs to reduce emissions (e.g., water efficiency measure).

Table 1. GPU Demographics Projections 2018-2040

	2018 (Baseline)	2030	2040 (GPU Horizon Year)
Households	14,394	28,825	40,851
Population	49,630	91,944	127,205
Jobs	10,377	25,525	38,149
Beaumont per Service Population	60,007	117,469	**165,354**

The baseline conditions modeling assumed the year 2018 and the future Beaumont General Plan modeling year assumed 2040. For comparison, 2020 and 2030 greenhouse gas emissions were estimated to compare to the State target defined in Senate Bill 32 (2016), 15 percent below 1990 levels by 2020 and 40 percent below 1990 levels by 2030.

Table 2. Emissions by Sector 2018-2040 (MTCO2e)

Sector	2018 (Baseline)	Adjusted 2020	Adjusted 2030	Adjusted 2040 GP Buildout
Residential electricity	*28,611*	*27,916*	*26,961*	*12,280*
Residential natural gas	*27,677*	*32,301*	*49,395*	*67,493*
Nonresidential electricity	*22,819*	*23,718*	*26,735*	*12,991*
Nonresidential natural gas	*3,957*	*4,920*	*8,781*	*12,801*
On-Road Transportation	*249,364*	*286,315*	*472,645*	*547,663*
Landfilled Waste	*12,030*	*13,950*	*21,154*	*29,778*
Water + Wastewater Treatment	*88,603*	*85,894*	*55,864*	*26,212*
TOTAL	***433,062***	***475,014***	***661,535***	***709,218***

Establishing GHG Emission Threshold

Although local governments have broad influence and exclusive authority over some activities that contribute to statewide GHG emissions, there are no state-mandated GHG reduction targets for individual cities or counties. However, there are several common approaches for assessing consistency with statewide GHG reduction targets for plan level assessments as well as project level assessments.

This analysis uses as per service population threshold parallel with the 2017 California Scoping Plan (CARB 2017). This approach recognizes that Beaumont is a growing city, and that growing cities do not generally see a reduction in total GHG emissions. Instead, due to the influx of new people and jobs to the city, more emissions are generated. Given that Beaumont's population and job totals are projected to double by 2040, using a per capita or per service population (jobs + population) is the most valid approach. This technique also acknowledges that cities are dynamic (and not just a point in time analysis). It is a reasonable way of evaluating emissions and is the industry standard in the climate action planning field.

However, using a per capita emissions target would not represent a useful threshold for determining whether future commercial and industrial development projects contribute their fair share towards meeting City emission targets. In order to facilitate subsequent project-level analysis of future residential, commercial, and industrial projects, this analysis uses a per service population threshold.

To determine the significance thresholds, three steps were taken. First, the analysis used the State's Scoping Plan to establish current conditions for emissions. Then the analysis reviewed existing State policies including AB 32, SB 32 and Executive Order S-03-05 (80% reduction by 2050) to calculate the State target emissions reductions based on the adopted policies. Finally, the analysis established the thresholds of significance based on the State's target emissions. For 2040, the threshold is 2.0 $MTCO_2e$ per service population (see Table 2).

Table 3. Thresholds of Significance for Greenhouse Gas Emissions in $MTCO_2e$

	2018 (Baseline)	2020	2030	Adjusted 2040 (GPU Build-out)
State Reduction Target	N/A	15% Below 1990 levels	40% Below 1990 levels	60% Below 1990s levels
Target per Service Population	5.6 $MTCO_2e$	5.6 $MTCO_2e$	3.2 $MTCO_2e$	2.0 $MTCO_2e$
Beaumont per Service Population	7.2 $MTCO_2e$	6.8 $MTCO_2e$	5.6 $MTCO_2e$	4.3 $MTCO_2e$

GHG Analysis Results

In order to determine the GHG impacts of the full buildout of the 2040 General Plan Update, R+A calculated the Adjusted Business-as-Usual (ABAU) emissions based on the General Plan Update growth projections and baseline year 2018 emissions. The ABAU forecast accounts for the impacts of adopted

State climate action policies on local emissions. There are four major policies that the State has adopted to reduce GHG emissions at the local level:

1. **Renewables Portfolio Standard (RPS):** This law requires that electrical utilities provide an increased amount of electricity from eligible renewable sources. SB 100 requires that 33% of electricity sold by utilities in 2020 be renewable, 60% be renewable in 2030, and 100% be carbon-free in 2045.
2. **Title 24:** Title 24 is the set of regulations that specifies how new buildings must be constructed, including specifying minimum energy efficiency standards. These standards are updated triennially to be more stringent. California has set a goal for zero-net energy new construction by 2030.
3. **Clean Car Standards:** These standards require that vehicles sold in California meet minimum fuel efficiency requirements, and that fuel sold in the state emits less GHGs during production and use.
4. **SB 1383:** This law requires that food scraps and other organic material be diverted from landfill disposal. The State goal is that 75% of organic material is diverted from landfill by 2025.

Additionally, R+A utilized the VMT estimates generated by Fehr & Peer's updated traffic model for the City to calculate on-road emissions. These VMT estimates are a more accurate depiction of the anticipated conditions in Beaumont in 2040.

Based on these adjusted inputs, the estimated total emissions for the Beaumont 2040 build-out equals 709,218 $MTCO_2e$ which translates to 4.3 $MTCO_2e$ per service population, including the sphere of Influence (SOI) as shown in Table 2. This is a 64% increase in total emissions since the 2018 baseline year and a 41% decrease in per service population emissions.

Table 4. 2040 GPU Estimated Emissions in $MTCO_2e$

	2018 (Baseline)	Adjusted 2020	Adjusted 2030	Adjusted 2040 (GPU Build-out)	% Change (Baseline to 2040)
Total Emissions	433,063 $MTCO_2e$	475,014 $MTCO_2e$	661,535 $MTCO_2e$	709,218 $MTCO_2e$	64%
Beaumont per Service Population	7.2 $MTCO_2e$	6.8 $MTCO_2e$	5.6 $MTCO_2e$	4.3 $MTCO_2e$	-41%

Potential Strategies for GHG Reductions

Since the estimated GHG emissions per service population in 2040 are higher than the threshold of significance, the City must prepare GHG mitigation measures. The City is currently participating in the

Western Riverside Council of Governments (WRCOG) regional Climate Action Plan (CAP) effort that addresses GHG emissions related to the following sectors at a minimum: energy and buildings, transportation, waste, and water and wastewater. The following table presents some best practice goals and strategies to achieve GHG reductions in each sector that the City could examine implementing in the future.

Table 5. Potential GHG Mitigation Strategies by Sector

Sector	Strategy
Buildings + Energy	Require residential and commercial energy efficiency upgrades in existing buildings
	Examine adopting an energy efficiency or electrification reach code beyond Title 24 requirements for new construction
	Explore requiring solar PV installation on residential and commercial buildings beyond CALGreen requirements
	Examine accelerating the renewable portfolio by joining a Community Choice Aggregation (CCA) program that procures 100% renewable energy
Transportation	Implement a Transportation Demand Management Program
	Examine adopting an EV-Ready reach code for EV charging infrastructure in residential and nonresidential new construction beyond CALGreen requirements
	Prioritize implementation of General Plan action items that encourage mode shift from driving alone to biking, walking and transit
	Explore implementing new micro-mobility programs including e-scooters and bikeshare
	Explore redesigning parking pricing in commercial and retail districts; requiring designated parking for EVs and carpool vehicles at new non-residential development; amending zoning codes to reduce vehicle parking requirements in new development.
Waste	Evaluate adopting a polystyrene ban
	Require commercial and residential organics and food waste recycling
	Examine adopting a single-use plastics ban
Water	Require residential and commercial water efficiency upgrades in existing buildings
	Evaluate adopting indoor and outdoor water efficiency requirements beyond CALGreen for new construction
	Streamline permitting for laundry to landscape greywater systems
	Invest in recycled water infrastructure and other local water supplies

Sources

American Community Survey: https://www.census.gov/programs-surveys/acs/data.html

Beaumont-Cherry Valley 2015 UWMP: https://bcvwd.org/wp-content/uploads/2017/09/January-2017-Urban-Water-Management-Plan-Final.pdf

Beaumont General Plan Update growth and transportation (TIA) assumptions

California Air Resources Board EMFAC 2040 model: https://arb.ca.gov/emfac/

California Air Resources Board 2017 Scoping Plan: https://ww2.arb.ca.gov/ghg-inventory-data

California Energy Commission:
https://efiling.energy.ca.gov/GetDocument.aspx?tn=205065&DocumentContentId=21592
CalRecycle 2014 Waste Characterization Study:
https://www2.calrecycle.ca.gov/WasteCharacterization/ResidentialStreams?lg=1033&cy=33

CalRecycle Short-Lived Climate Pollutants (SLCP): Organic Waste Methane Emissions Reductions:
https://www.calrecycle.ca.gov/climate/slcp

Energy Code Ace:
https://energycodeace.com/download/13929/file_path/T20%20Plumbing%20FS%20081116%20(2).pdf
https://energycodeace.com/download/35132/file_path/fieldList/Whats%20New.2019%20Residential%20Code
https://energycodeace.com/download/35133/file_path/fieldList/Whats%20New.2019%20Nonresidential%20Code

SoCalGas data request, February 2020

Southern California Edison data request, February 2020

FINAL Transportation Impact Analysis

Beaumont General Plan Update

And Beaumont Downtown Area Plan

Prepared for:
Raimi and Associates

July 2020

OC17-0488

FEHR PEERS

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1. EXECUTIVE SUMMARY

PROPOSED GENERAL PLAN UPDATE

Fehr & Peers has completed a transportation impact analysis (TIA) for the proposed 2018 Beaumont General Plan Update and Beaumont Downtown Area Plan (DAP) in the City of Beaumont, California. The proposed City of Beaumont General Plan Update (the project) consists of residential, commercial, industrial, and some mixed-use land use designations. In total, the General Plan land use buildout assumes the following:

26,566 acres
40,851 housing units
127,205 population[1]
33,076,048 non-residential square feet
38,149 jobs

SCOPE OF STUDY

Intersections, roadway segments, freeway mainline segments, and multi-modal transportation facilities such as pedestrian, bicycle, and transit, were all considered in this TIA. The study area includes facilities mostly in the City of Beaumont and its sphere of influence, but it also includes facilities under the jurisdiction of Caltrans and the County of Riverside.

FINDINGS

This TIA, prepared pursuant to the California Environmental Quality Act (CEQA), found that the following locations require physical improvements in order to be consistent with applicable plans, ordinances or policies establishing measures of effectiveness for the performance of the circulation system. All

[1] This population count was developed for travel demand model forecasting purposes. The population for each traffic analysis zones (TAZ) was determined using the assumed residents per household identified in the SCAG socio-economic data. This method, though consistent with regional assumptions, differs from population estimates used in other analysis areas (such as energy and water).

intersections in the Existing (2018), Existing (2018) Plus Project, and Cumulative (2040) Conditions operate at an acceptable level of service (LOS). Therefore, no mitigation measures were created.

In the Existing Plus Project scenario, the Interstate 10 (I-10) between Pennsylvania Avenue and Highland Springs Avenue will require additional lanes to operate acceptably. In the Cumulative (2040) scenario, the following roadway segments will operate deficiently and require additional lanes to mitigate impacts:

Beaumont Avenue/State Route 79 (SR-79) - South of California Avenue
SR-60 Freeway - West of the I-10
I-10 Freeway West of SR-60
I-10 Freeway Between SR-60 and SR-79
I-10 Freeway Between SR-79 and Pennsylvania Avenue
I-10 Freeway Between Pennsylvania Avenue and Highland Springs Avenue

All other items covered in the Initial Checklist (Appendix G of CEQA) were determined to have less than significant impacts.

2. INTRODUCTION

Fehr & Peers has completed a TIA for the proposed Beaumont General Plan Update and the Beaumont Downtown Area Plan (DAP) in the City of Beaumont, California. This report summarizes the methodology, findings and conclusions of the analyses, including identification of recommended mitigation measures necessary to maintain consistency with the goals and policies of the proposed General and Area Plan. This chapter outlines the geographic scope of the TIA, including the study area.

PROJECT DESCRIPTION

The City of Beaumont is located in Riverside County. It is bordered by the City of Banning to the east and Calimesa to the west. The proposed Beaumont General Plan Update includes a sphere of influence located predominately south of the current City limits. In total, the General Plan land use proposes a buildout of the following assumptions:

26,566 acres
40,851 housing units
127,205 population
33,076,048 non-residential square feet
38,149 jobs

In the context of this TIA, the buildout of the general plan will be referred to as "the project". **Figure 2-1** identifies the project's boundaries (including the sphere of influence), proposed General Plan land use assumptions, and the general location of the City.

The analysis also reflects the Beaumont Downtown Area Plan. The DAP is focused on Sixth Street between Veile Avenue and Highland Springs Avenue, and along Beaumont Avenue between Fifth Street and 12th Street. **Figure 2-2** identifies the Beaumont Downtown Area Plan boundary and shows the proposed land use within that area.

STUDY AREA

The study area of this analysis includes roadway segments in and around the City of Beaumont that are anticipated to be affected by the proposed General Plan. Roadway segments were selected based on areas where significant change occurred due to the General Plan land use assumptions.

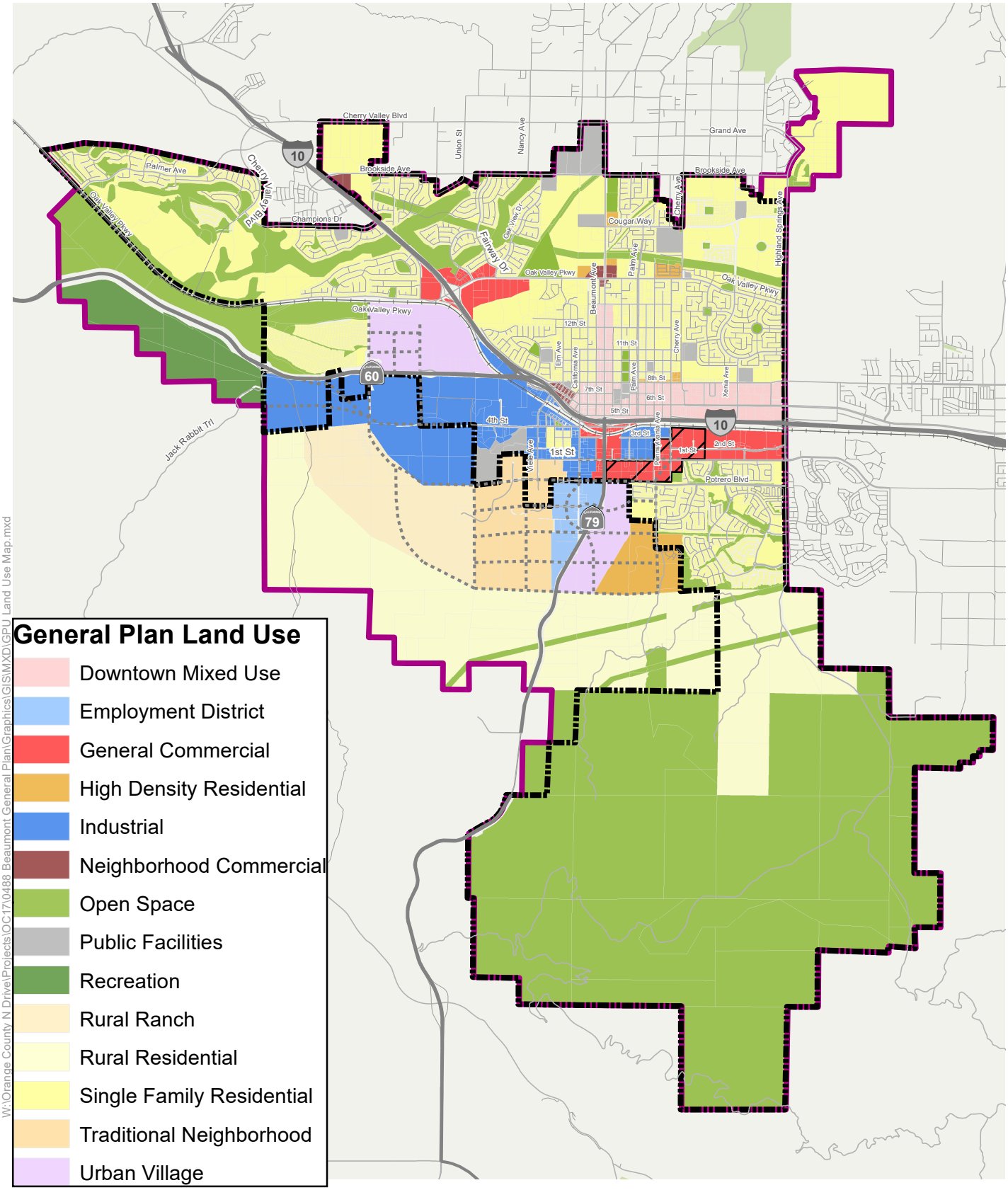


Figure 2-1

Beaumont General Plan Project Area

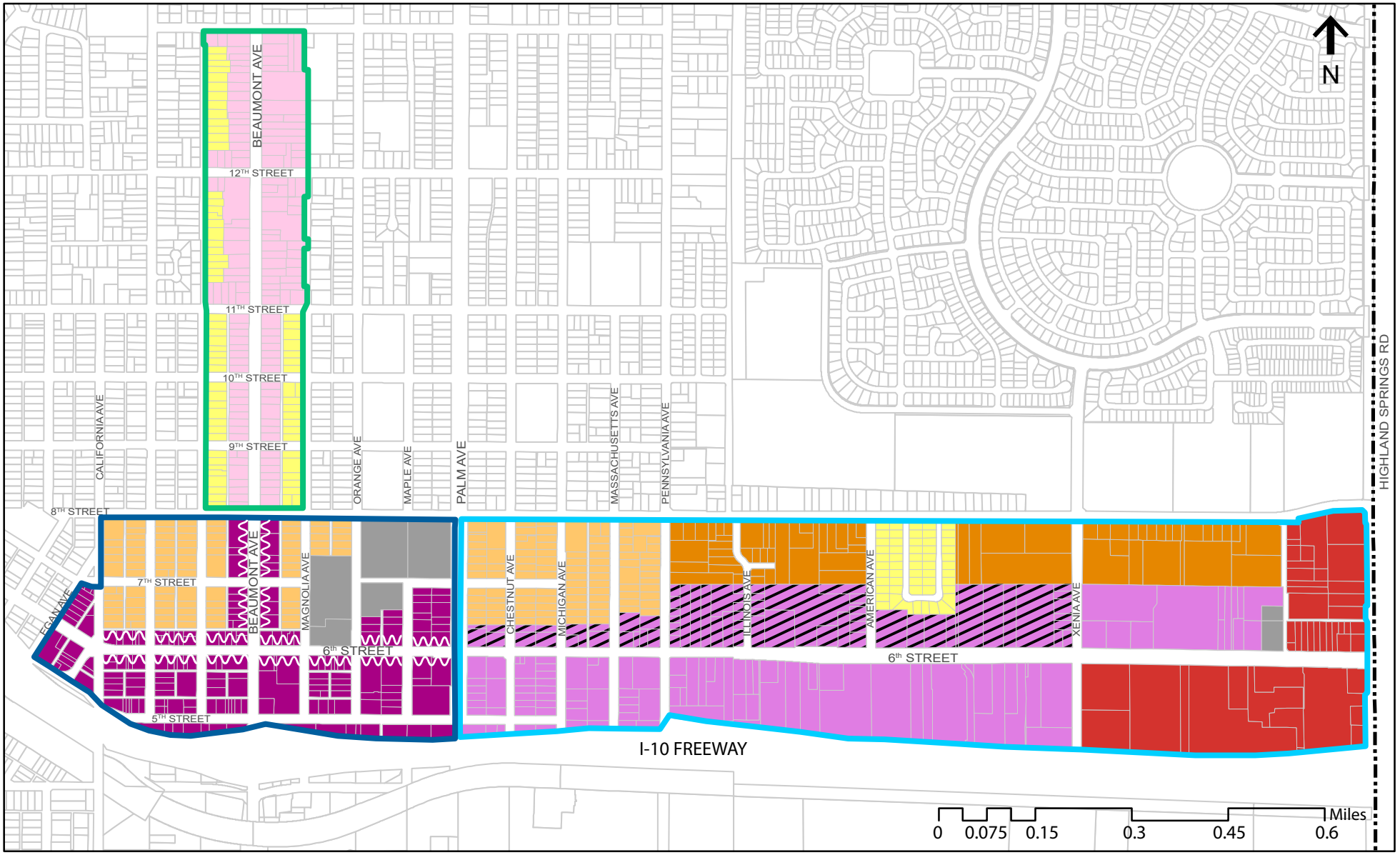


Figure 2-2

City of Beaumont Downtown Area Plan

The study intersections were selected based on the City's desire to review intersections within the Beaumont Downtown Area Plan Area and not required by the General Plan.

The following lists define the study area:

Signalized Intersections:

1. Beaumont Avenue/11th Street
2. Beaumont Avenue/Eighth Street
3. Sixth Street/California Avenue
4. Sixth Street/Beaumont Avenue
5. Beaumont Avenue/Fifth Street
6. Sixth Street/Orange Avenue
7. Sixth Street/Palm Avenue
8. Sixth Street/Pennsylvania Avenue
9. Sixth Street/Xenia Avenue
10. Sixth Street/Highland Springs Avenue
11. Beaumont Avenue/ I-10 westbound Ramps

Roadway Segments:

1. Oak Valley Parkway west of Potrero Boulevard
2. Oak Valley Parkway east of Potrero Boulevard
3. Oak Valley Parkway between I-10 westbound Ramps and Oak View Drive
4. Beaumont Avenue north of Oak Valley Parkway
5. Oak Valley Parkway west of Starlight Avenue
6. Beaumont Avenue between Eighth Street and 12th Street
7. Highland Springs Avenue south of Oak Valley Parkway
8. Xenia Avenue north of Sixth Street
9. Sixth Street east of Veile Avenue
10. Beaumont Avenue between Fifth Street and Sixth Street
11. Sixth Street east of Beaumont Avenue
12. Pennsylvania Avenue between Sixth Street and I-10 WB Ramps
13. Sixth Street east of Pennsylvania Avenue
14. Highland Springs Avenue between Fifth Street and Sixth Street
15. Veile Avenue north of Fourth Street
16. Beaumont Avenue south of Fourth Street

17. Pennsylvania Avenue between I-10 EB Ramps and Third Street
18. Highland Springs Avenue between I-10 EB Ramps and First Street
19. First Street between Pennsylvania and Highland Springs Avenue
20. Beaumont Avenue (SR-79) south of First Street
21. Beaumont Avenue (SR-79) south of California Avenue
22. SR-60 Freeway west of I-10
23. I-10 Freeway west of SR-60
24. I-10 Freeway between SR-60 and SR-79
25. I-10 Freeway between SR-79 and Pennsylvania Avenue
26. I-10 Freeway between Pennsylvania Ave and Highland Springs Avenue

Figure 2-3 and **Figure 2-4** showcase the study area and analyzed intersections and roadways.

ANALYSIS SCENARIOS

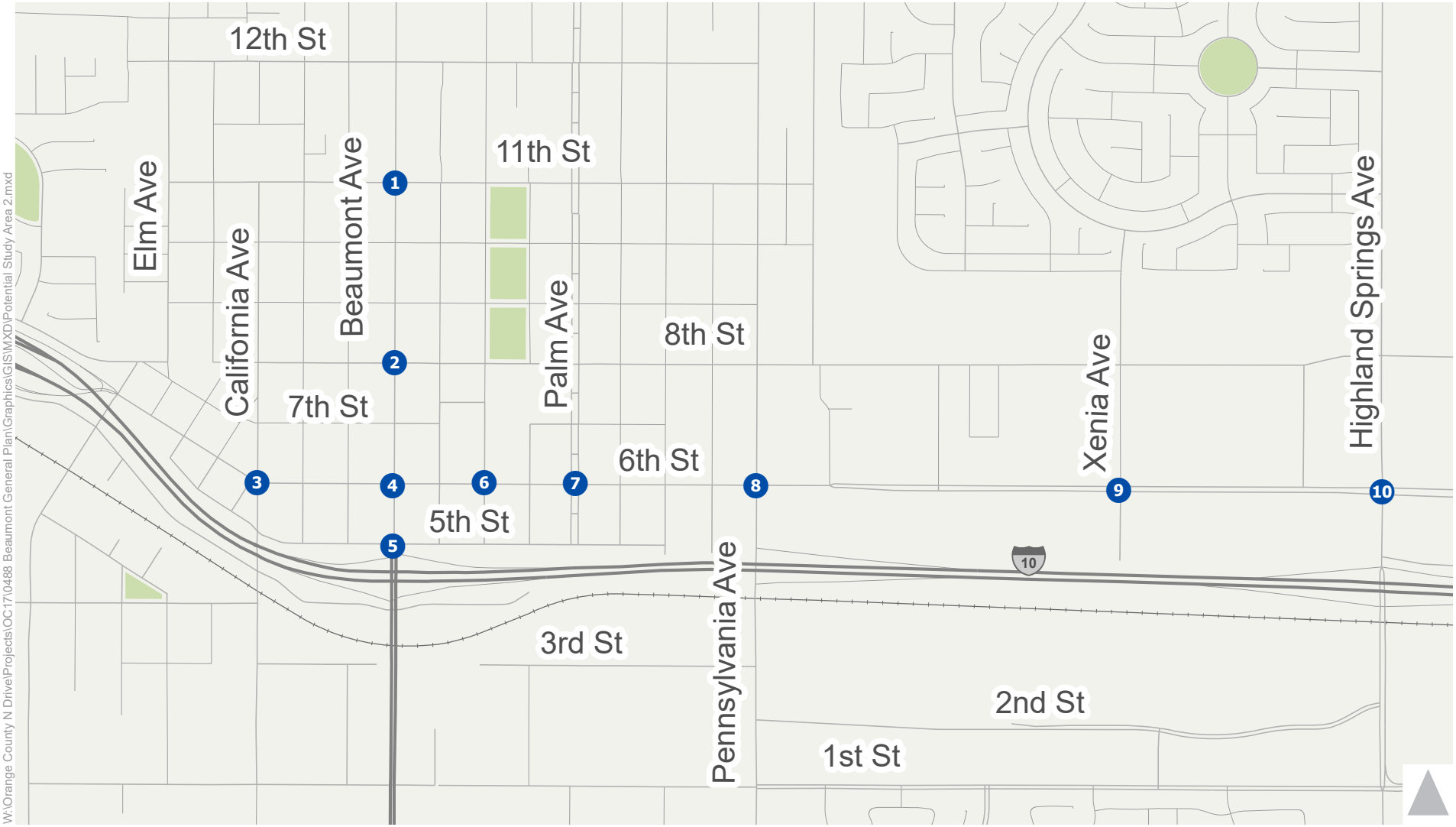
To identify potential significant project impacts, Fehr & Peers analyzed the following three scenarios:

Existing Year (2018) Conditions – Based on existing counts collected in the study area in April of 2018.

Existing Year (2018) Plus Project Conditions – Consists of forecasted volumes based on the buildout of the project inside the sphere of influence and existing land use conditions outside of the City. The "Plus Project" condition includes buildout of the proposed General Plan Update (which also includes the DAP).

Cumulative Year (2040) Conditions – Consists of forecasted volumes to Year 2040 based on the growth and travel forecasts contained in the RIVTAM travel demand forecasting model and the land use and transportation projects proposed by the General Plan Update (which also includes the DAP).

The TIA was performed during the typical weekday AM and PM peak hour conditions at the study intersections. Average daily traffic was used to evaluate roadway segment operations for those study facilities. Planned intersection and roadway changes proposed as part of the Beaumont Downtown Area Plan are assumed as part of the project.



Study Intersections

Figure 2-3
Study Intersections

Roadway Study Segments

Figure 2-4
Roadway Study Segments

3. ANALYSIS METHODOLOGY

This chapter discusses the analysis methodologies and assumptions used to determine project impacts as approved by the City.

TRANSPORTATION TRENDS

Transportation network companies (TNCs), such as Lyft and Uber, and vehicles are transportation trends that have begun to influence travel behaviors and are projected to continue to do so in the future. At this time, however, sufficient data is not available to draw conclusions about these topics. Based on the limited information available, it is difficult, if not impossible, to document how these transportation trends quantitatively influence overall travel conditions. This TIA relies on the best information available about existing and future travel patterns, at the time of publication, in order to provide the public and decision makers with the best information possible on which to evaluate the General Plan. Therefore, this analysis of this TIA does not account for these transportation trends.

LEVEL OF SERVICE CRITERIA

INTERSECTION ANALYSIS

Intersection operating conditions in the study area were evaluated using the Highway Capacity Manual (HCM) 6th Edition Transportation Research Board (TRB) methodology, which is considered the state-of-the-practice methodology for evaluating intersection operations and is consistent with the City of Beaumont and Caltrans requirements.

The HCM 6th Edition Methodology estimates a quantitative delay at intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for signalized and unsignalized intersections are provided in Table 3-1. Please see Table 3-1 for intersection LOS criteria.

Trafficware Synchro 10 software package was used to facilitate the HCM 6th Edition calculations. The delay, calculated in seconds per vehicle, was compared to the LOS thresholds outlined in the HCM 6th Edition. For signalized and all-way stopped controlled intersections, intersection level of service is determined based on

average delay per the standard HCM 6th Edition methodology. For side-street stop-controlled intersections, level of service is determined based on worst-case approach delay.

The following factors were applied in the intersection analysis:

Peak Hour Factor (PHF) was based on traffic counts collected in the field for all Existing Conditions analysis

PHF for all future analysis was set to 0.95

Heavy vehicle percentage was set to 2% for all analysis scenarios

TABLE 3-1
INTERSECTION LOS CRITERIA

Level of Service	Description	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	< 10.0	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	>10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	>15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	>25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	>50.0

Source: Highway Capacity Manual (Transportation Research Board, 2017)

ROADWAY ANALYSIS

Roadway segment LOS is defined on the basis of Average Daily Traffic (ADT). Roadway segments for Existing (2018) conditions were analyzed utilizing the roadway segment LOS criteria from the Beaumont General Plan (1997). These traffic volume thresholds are shown in **Table 3-2**. Roadway segments for the Existing (2018) Plus Project and Cumulative (2040) Plus Project scenarios were analyzed utilizing HCM 6th Edition methodology. These traffic volume thresholds are shown in **Table 3-2**.

TABLE 3-2 PROPOSED ROADWAY CLASSIFICATION STANDARDS

Number of Lanes	LOS C (vehicles)	LOS D (vehicles)	LOS E (vehicles)
Freeway			
10	158,000	178,000	200,000
8	126,400	142,400	160,000
6	94,800	106,800	120,000
4	63,200	71,200	80,000
Expressway			
8	59,250	66,750	75,000
6	47,400	53,400	60,000
4	35,550	40,050	45,000
Urban Arterial Highway			
6	43,450	48,950	55,000
Arterial/Major Highway/ Major Frontage			
4	35,550	40,050	45,000
2	19,750	22,250	25,000
Downtown Streets			
6	43,450	48,950	55,000
4	35,550	40,050	45,000
2	19,750	22,250	25,000
Secondary Streets/Secondary Highway/Secondary Frontage			
4	31,600	35,600	40,000
2	15,800	17,800	20,000
Collector/ Industrial Collector			
4	19,750	22,250	25,000
2	9,880	11,130	12,500
Local Streets			
2	1,580	1,780	2,000

Source: Highway Capacity Manual (Transportation Research Board, 2017).

PERFORMANCE CRITERIA AND THRESHOLDS OF SIGNIFICANCE

The following LOS significance criteria were employed to determine if the project causes significant traffic impacts at intersections within the study area.

INTERSECTION IMPACT CRITERIA

Based on the City of Beaumont and Caltrans TIA guidelines, the following performance criteria and thresholds of significance were used to determine impacts at study facilities:

City of Beaumont

The City has adopted LOS D as the minimum acceptable standard, on all auto-priority streets, and LOS E as acceptable on non-auto-priority streets. A significant traffic impact occurs if the addition of project-generated trips causes an intersection to change from an acceptable LOS to a deficient LOS, or if project traffic increases the delay at any intersection already operating at an unacceptable LOS.

Caltrans

Caltrans has adopted the transition between LOS C and LOS D as the threshold for their facilities. As such, LOS "D" is the minimum acceptable standard for state facilities. The project causes a significant impact if it causes the LOS to change from an acceptable LOS (LOS "D" or better) to a deficient LOS (LOS "E" or worse) or increases delay/density on a facility operating at an unacceptable level.

ROADWAY SEGMENT IMPACT CRITERIA

According to the City's evaluation criteria, the minimum acceptable daily LOS for roadways of Collector or higher roadway classification is LOS "D" for auto-priority streets, and LOS "E" for non-auto-priority. The recommended roadway segment impact thresholds are as follows:

A significant impact occurs when the LOS on a roadway segment degrades from an acceptable LOS to a deficient LOS; OR

A significant impact occurs when the project increases the volume to capacity (V/C) ratio of a roadway segment already operating at an unacceptable LOS by more than 0.02.[2]

[2] Significant impact threshold criteria is based on the County of Riverside TIA guidelines.

TRAFFIC VOLUME FORECASTING

RIVERSIDE COUNTY TRAFFIC ANALYSIS MODEL

The Riverside Traffic Analysis Model (RIVTAM) was used to develop forecasts for this project. The current RIVTAM uses a 2008 Base Year and a 2035 Future Year and Socioeconomic Data (SED), consistent with the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) model. However, the roadway networks and SED were reviewed for consistency with the 2016 RTP/Sustainable Communities Strategy (SCS) in the study area and updated appropriately based on the comparison to create a 2016 Base Year and 2040 Future Year condition.

The roadway network in the RIVTAM model was reviewed to determine the level of detail in the project study area. The following roadway improvements were identified for inclusion based on the RTP:

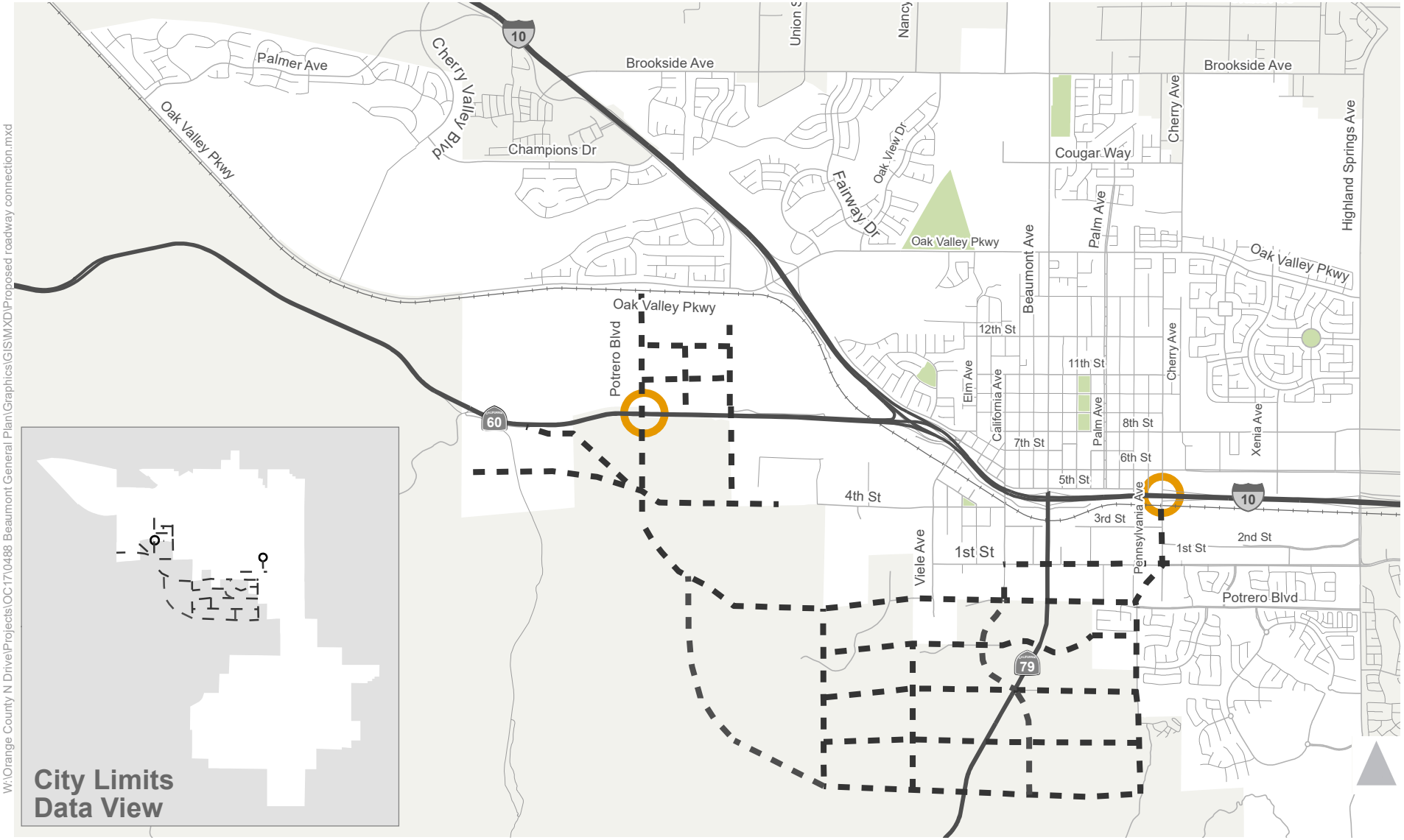
- RTP ID RIV050535: Construction of new Potrero Boulevard and SR-60 interchange (Completion Year 2020)
- RTP ID 3AO4WT003: Widening of Highland Springs Avenue from four to six lanes between Fifth Street and I-10 south ramps (Completion Year 2035)
- RTP ID 3MO4WT001: Widening of Highland Springs Avenue from four to six lanes between Fifth Street and First Street (Completion Year 2027)
- RTP ID 3MO4WT004: Reconstruct Pennsylvania Avenue and I-10 interchange to a full diamond interchange (Completion Year 2030)

In addition to these network improvements noted above, the roadway network proposed as part of the General Plan Update Mobility Element were included as part of the proposed project. **Figure 3-1** shows the proposed roadway and network improvements.

Socio-Economic Data (SED)

As mentioned above, the General Plan land use proposes a buildout with the following assumptions:

26,566 acres
40,851 housing units
127,205 population
33,076,048 non-residential square feet
38,149 jobs



Proposed Roadway Connections

New Interchange

Figure 3-1
Proposed Roadway Connections

The travel demand forecasting model includes inputs such as households, assumptions related to population in those households, and jobs (for non-residential uses). As mentioned above, the population for each traffic analysis zone (TAZ) was determined using the assumed residents per household identified in the SCAG socio-economic data. This method was used to be consistent with the regional RTP/SCS assumptions; however, using the SCAG socio-economic data to estimate population at a TAZ level does result in a population estimate that differs from population estimates used in other analysis areas.

Volumes Forecasting

RIVTAM was used to develop the future traffic volume forecasts. Three model scenarios were utilized in the forecasting process: Base Year, Base Year Plus Project, and Future Year, as described below:

Base Year Model – This scenario contains the base year (2012) land use and roadway network assumptions.

Base Year Plus Project Model – This scenario contains the base year (2012) land use and roadway network assumptions. The TAZs in the City of Beaumont were updated based on the General Plan proposed land use socioeconomic data. The network was updated to reflect the roadway network proposed in the Mobility Element of the General Plan Update. The most recent information for the Potrero Boulevard/SR-60 interchange improvement and Pennsylvania Avenue/I-10 interchange improvement projects were included in the roadway network.

Future Year Model – This scenario contains the future year (2040) land use and roadway network assumptions. The TAZs in the City of Beaumont were updated based on the General Plan proposed land use socioeconomic data. The network was updated to reflect the General Plan Mobility Element.

To develop Future Year scenario forecasts, the Future Year model was compared to the Base Year model outputs using the difference method. The difference method was implemented using standard techniques consistent with the National Cooperative Highway Research Program (NCHRP) Report 716. The arithmetic difference was taken between the future year and base year model outputs, and that difference was used to determine annual growth. That annual growth was then added to the existing traffic counts collected in 2018 to determine the project traffic volumes. This method was applied for both turning movement volumes and roadway segment ADT volumes. To provide a conservative analysis, negative growth was not included in the adjustment process. If the model predicted negative growth over existing conditions, the existing conditions volumes were utilized.

4. EXISTING (2018) CONDITIONS

This chapter discusses the existing transportation conditions in the project study area. This discussion addresses the roadway, transit, bicycle, and pedestrian networks. An operational analysis of the study area intersections, roadway segments, and freeway mainline facilities is also discussed.

EXISTING ROADWAY FACILITIES

REGIONAL ROADS

Interstate 10 (I-10) - I-10 provides direct access to the City by way of on and off-ramps located at Beaumont Avenue, Highland Spring Avenue, Oak Valley Parkway, Pennsylvania Avenue, and State Route 60 (SR-60). I-10 is an east-west facility with eight lanes and a posted speed of 70 mph that extends west to the City of Los Angeles and eastward to Arizona and beyond.

State Route 60 (SR-60) – The SR-60, also known as the Moreno Valley Freeway in Beaumont, provides direct access to the City by way of on- and off-ramps located at Sixth Street. Additional access will be provided by a new interchange currently under construction at Potrero Boulevard. SR-60 begins west of the City in Los Angeles and terminates at its I-10 junction within the City of Beaumont. Within the City limits, the highway has four lanes with a posted speed of 65 mph.

State Route 79 (SR-79) – SR-79 is a north-south facility beginning in Beaumont, extending south, and terminating in Los Terrenitos at Interstate 8 (I-8). Within the city limits, the highway has four lanes. Beaumont Avenue south of 5th Street is also designated as SR-79. It is a state highway with a posted speed of 45 miles per hour within the city limits.

LOCAL ROADS

First Street – First Street was classified as a major arterial between Michigan Avenue and Highland Springs Avenue, and as a secondary street between Michigan Avenue and Viele Avenue, in the 2007 General Plan Update. The roadway is now classified as an arterial. It is an east-west facility with four lanes that provides access to the Walmart transit transfer station.

Sixth Street – Sixth Street was classified as a major arterial between Pennsylvania Avenue and Xenia Avenue and a secondary arterial between Beaumont Avenue and Pennsylvania Avenue in the 2007 General Plan

Update. The roadway is not classified as a downtown street. It is an east-west facility with four lanes. It provides direct access to SR-60 and I-10.

Beaumont Avenue – Beaumont Avenue was classified as a major arterial between Oak Valley Parkway and Cougar Way, a secondary roadway between Sixth Street and Oak Valley Parkway, and an expressway between Laird Road and 5th Street in the 2007 General Plan Update. The roadway is now classified as a collector north of Cougar Way, an arterial between Cougar Way and Oak Valley Parkway, a downtown street between Oak Valley Parkway and the I-10 westbound ramps, and an expressway south of the I-10 westbound ramps. It is a north-south facility with four lanes that provides access through the central core of the city.

Highland Springs Avenue - Highland Springs Avenue was classified as an arterial north of Sixth Street and between First Street and Potrero Boulevard; an urban arterial between Sixth Street and First Street; a secondary roadway between Potrero Boulevard and Breckenridge Avenue; and a divided collector south of Breckenridge Avenue in the 2007 General Plan Update. The roadway is now classified as an arterial north of First Street and a collector between First Street and Potrero Boulevard. It is a north-south facility that varies between four and six lanes.

Oak Valley Parkway – Oak Valley Parkway was classified as an urban arterial between Potrero Boulevard and Oak View Drive, a major arterial between Potrero Boulevard and Palmer Avenue, and a major arterial between Beaumont Avenue and Highland Springs Avenue, in the 2007 General Plan Update. The roadway is now classified as an arterial. It is an east-west facility with four lanes.

Palms Avenue – Palms Avenue was classified as a collector roadway in the 2007 General Plan Update. The roadway is still classified as a collector. It is a north-south facility with two lanes. Palm Avenue has a center median that serves pedestrians and bicyclists.

Pennsylvania Avenue – Pennsylvania Avenue was classified as an arterial between Sixth Street and First Street in the 2007 General Plan Update. The roadway is still classified as an arterial. It is a north-south facility with two lanes that provides access to I-10.

Potrero Boulevard – Potrero Boulevard was classified as a major arterial between Fourth Street and Michigan Avenue, and as a secondary roadway between Michigan Avenue and Highland Springs Avenue in the 2007 General Plan Update. This roadway is now classified as an arterial west of Pennsylvania Avenue and a collector east of Pennsylvania Avenue. It is an east-west facility with two lanes.

BICYCLE FACILITIES

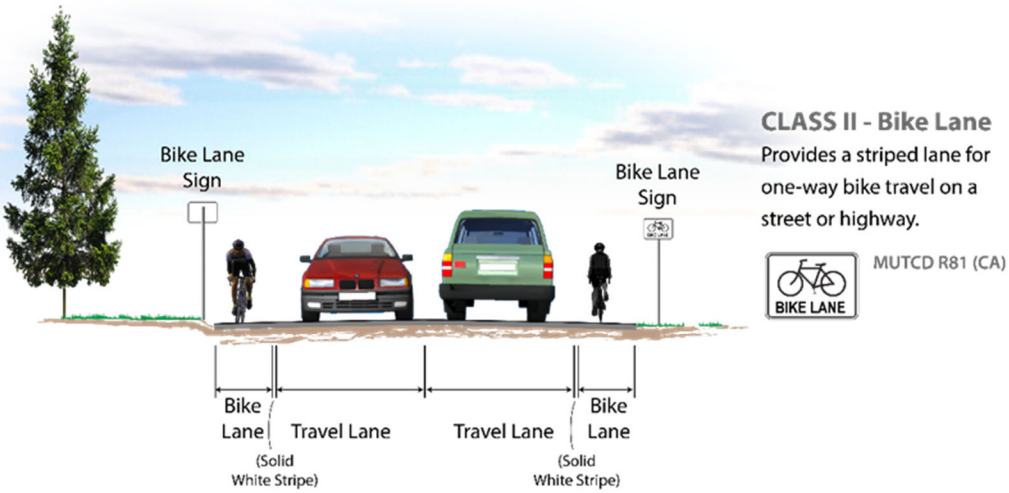
Bicycle facilities are classified as follows:

CLASS I BIKEWAYS (BIKE PATHS)

Class I bicycle facilities are bicycle trails or paths that are off-street and separated from automobiles. They are a minimum of eight feet in width for two-way travel and include bike lane signage and designated street crossings, where needed. A Class I Bike Path may parallel a roadway (within the parkway) or may be a completely separate right-of-way that meanders through a neighborhood or along a flood control channel or utility right-of-way.

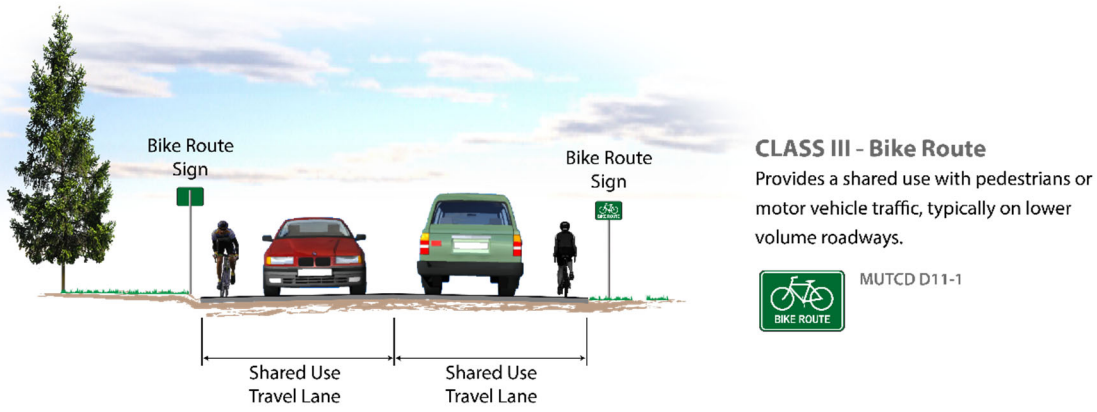
CLASS II BIKEWAYS (BIKE LANES)

Class II bicycle facilities are striped lanes that provide bike travel and can be either located next to a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended. However, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.



CLASS III BIKEWAYS (BIKE ROUTES)

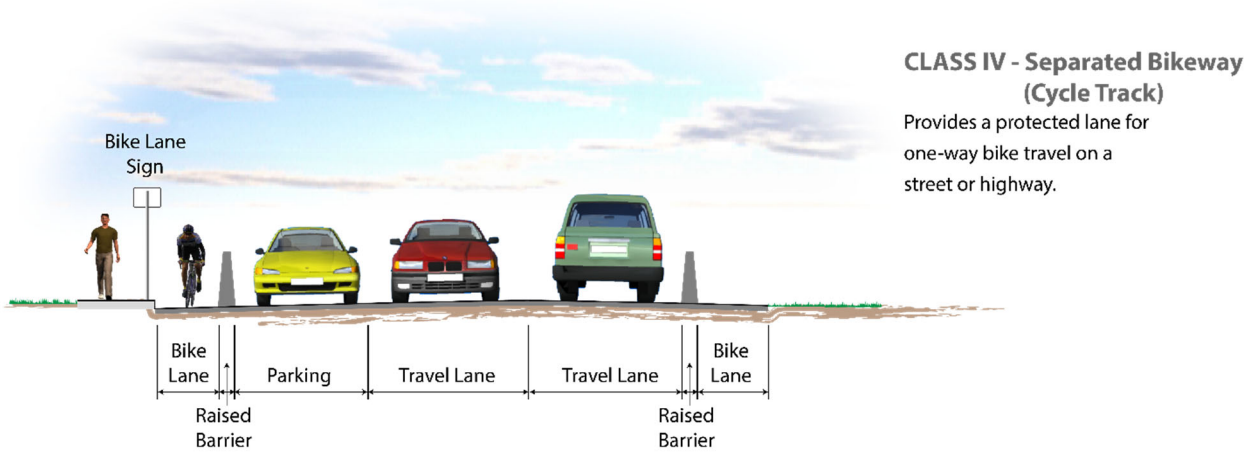
Class III Bikeways are streets providing for shared use by motor vehicles and bicyclists. While bicyclists have no exclusive use or priority, signage on both the side of the street and stenciled on the roadway surface alerts motorists to bicyclists sharing the roadway space, denoting that the street is an official bike route.



CLASS IV BIKEWAYS (CYCLE TRACKS)

Class IV bicycle facilities, sometimes called cycle tracks or separated bikeways, provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and are protected from vehicular traffic via separations (e.g., grade separation, flexible posts, inflexible physical barriers, and on-street parking).

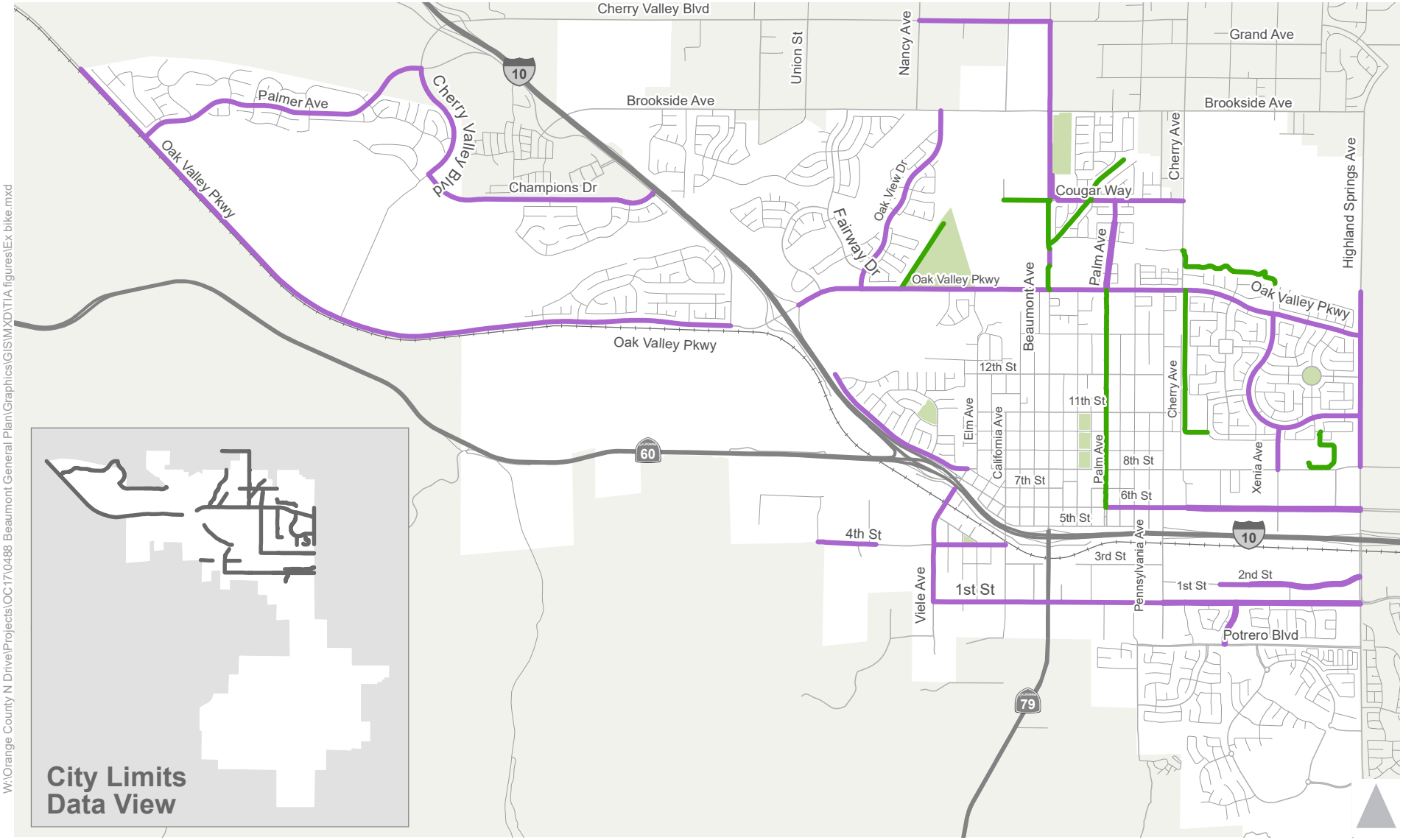
California Assembly Bill 1193 (AB 1193) legalized and established design standards for Class IV bikeways in 2015.



Numerous bike facilities have been implemented throughout the City. However, they are generally disconnected and don't provide good cross-town connectivity to fully connect all residents to potential destinations. The City adopted a Bikeway and Pedestrian Master Plan in February 2011. The Master Plan has identified a comprehensive system of bikeways, including trails along key utility corridors that will complete the future bikeway system. The Bikeway Master Plan also identifies the development of bicycle facilities along the Edison Transmission Easement corridor, which spans from Oak View Drive to Highland Springs Avenue. **Figure 4-1** shows the existing bicycle facilities. The mobility element of the Beaumont General Plan Update identifies streets that should prioritize bicycle facilities. **Figure 4-2** shows the bicycle priority facilities. Policies within the mobility element are outlined to encourage the City to develop bicycle facilities along these bicycle priority roadways.

PEDESTRIAN FACILITIES

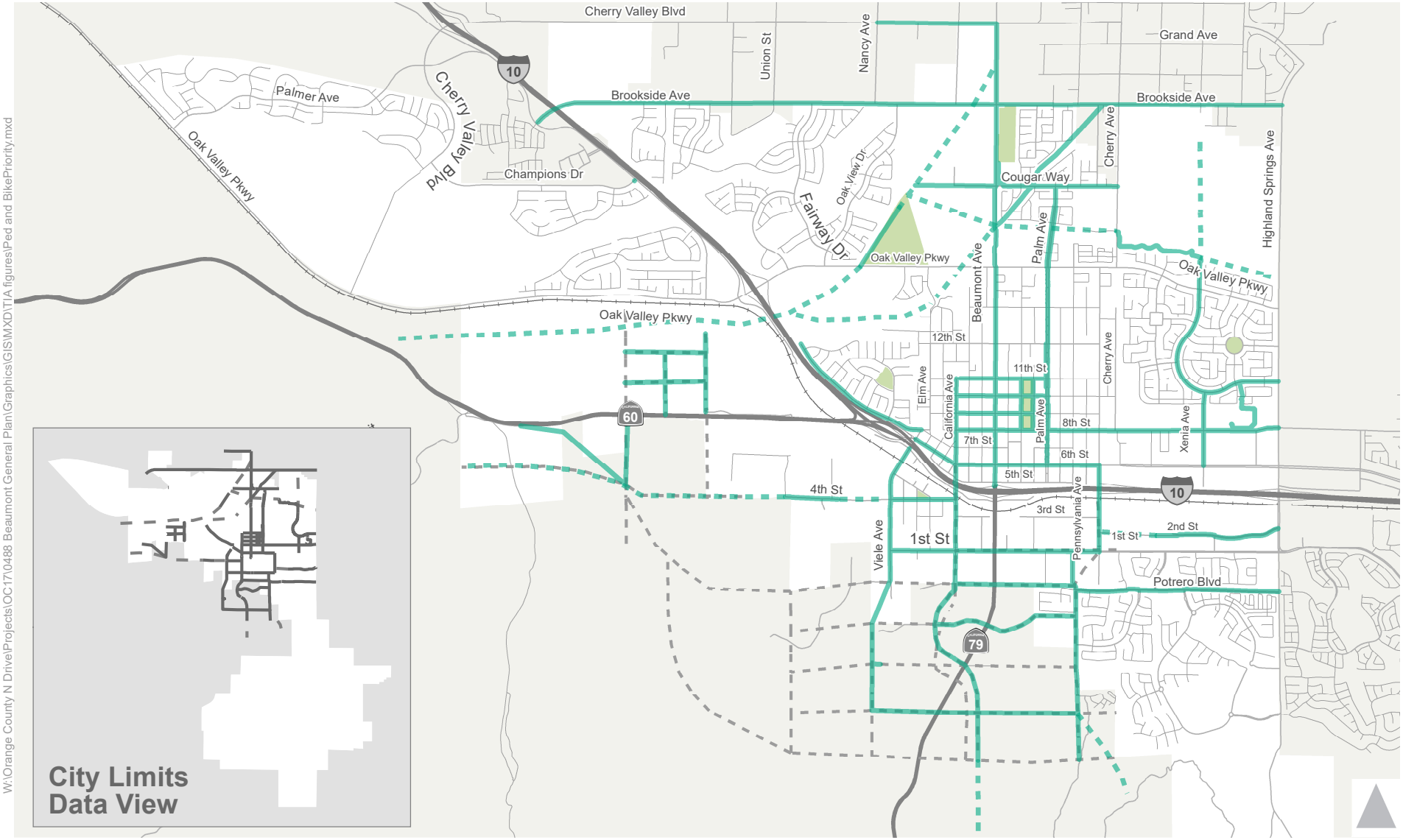
Walking is an environmentally friendly mode of transportation that enhances both personal and social well-being. In addition to transportation, this mode of travel provides many public access, health and economic benefits. Well-designed pedestrian facilities are safe, attractive, convenient, and easy to use. Incomplete sidewalk networks and poor sidewalk conditions are a major deterrent to walking. Sidewalks are generally provided on at least one side of the street along most of the major roadways throughout the City. However, there are also several sidewalk gaps along these corridors.



Existing Bicycle Facility

- Class 1 Bike Path
- Class 2 Bike Lane

Figure 4-1
Existing Bicycle Facility



Proposed Roadway Connections

Trail Priority

Bicycle and Pedestrain Priority

Figure 4-2
Pedestrian and Bicycle Facilities

Various signalized intersections contain crosswalks allowing pedestrians the choice of where to cross and providing good pedestrian access. The all-way and side-street stop controlled intersections within the City have a mix of crosswalks on all, some, or no approaches to the intersection. There is also a noticeable lack of sidewalk access in the residential areas adjacent to the downtown area. Specifically, in a grid roadway network that has great connectivity, sidewalks should be provided on both sides of the roadway.

EXISTING TRANSIT FACILITIES

Transit service in Beaumont is provided by the Beaumont Pass Transit System. It provides bus service to the City, local schools, and surrounding destinations. Riverside Transit Agency and SunLine Transit Agency also provide service to the City of Beaumont. The Walmart transit center operates as a key transit station and provides access to many of the routes that service the area. Many users of the City's system are students traveling to/from school. **Figure 4-3** shows the existing transit facilities.

BUS SERVICES

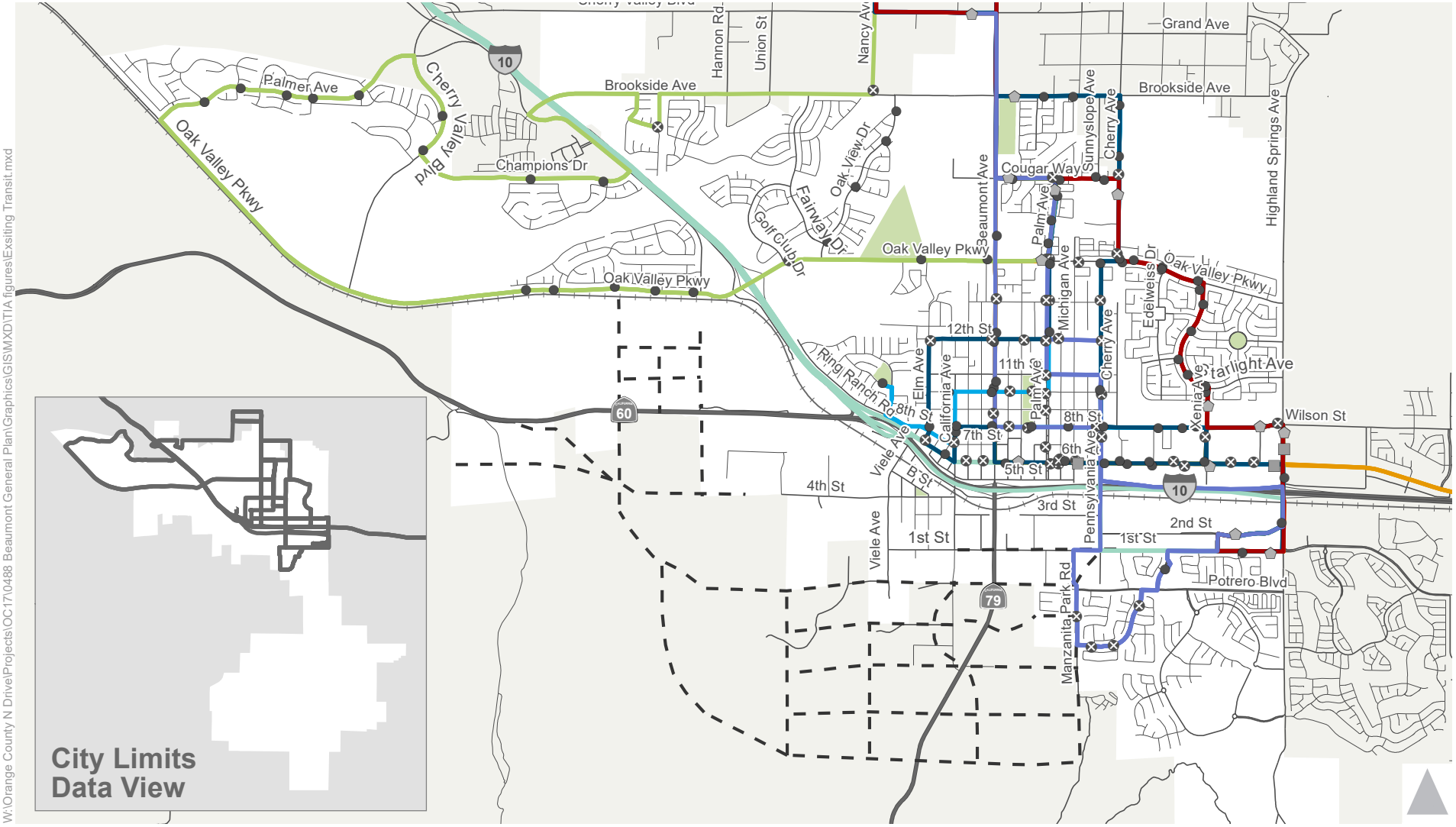
Route 2 – provides service from Beaumont to Cabazon. This route runs service to the Walmart transfer station, Banning, San Gorgonio Hospital transfer station, Casino Morongo and Outlet Malls. It operates from 6:30 AM to 7:50 PM at varying headways at least one hour apart on weekdays. It operates from 8:00 AM to 6:00 PM at approximately two-hour headways during the weekends.

Route 3 - provides service to the Walmart transfer station, Sundance, Beaumont High School, and Cherry Valley during the weekdays. It operates from 6:24 AM to 6:02 PM at varying headways, and at least one hour apart on weekdays. On Saturdays, this route operates in conjunction with Route 4.

Route 4 – provides service throughout midtown Beaumont to the Walmart transfer station, San Gorgonio Hospital transfer station, Orchard Park, and Chatigny Recreational Center. It operates from 7:35 AM to 7:35 PM at varying headways, at least one-hour apart on weekdays.

Route 7 – provides service in conjunction with Beaumont Unified School District and operates only when school is in session. This route provides service to Fairway Canyon and Beaumont High School. Route 9 operates between the hours of 6:35 AM to 7:54 AM and 3:10 PM to 4:30 PM.

Route 9 – provides service in conjunction with Beaumont Unified School District and operates only when school is in session. This route provides service to the Beaumont Walmart, Mountain View Middle School, San Gorgonio Middle School, and Beaumont High School. Route 9 operates between the hours of 6:35 AM to 7:54 AM and 3:10 PM to 4:18 PM.



Bus Routes

- 3
- 4
- 7
- 9
- 3/4
- 120
- 2

Bus Stops

- Bench/Sign
- No Bus Sign
- Shelter
- Sign Only

Figure 4-3
Existing Transit Facility

Route 136 – provides service in the City of Calimesa. This transit route is operated through Beaumont Pass Transit with connections to Commuter Link 120. Connection to this route provides transfer service to Yucaipa OmniTrans routes 308 and 309. Route 136 operates from 7:20 AM to 5:25 PM at varying 30-minute headways.

Commuter Link 120 – an express route that provides service from Beaumont to Calimesa, San Bernardino Metrolink Station and Loma Linda Veteran's Hospital. The San Bernardino Metrolink Station provides transfer connections to Amtrak train services, as well as RTA, OmniTrans, Victor Valley Transit Authority, and Mountain Area Regional Transit Authority.

PASSENGER RAIL

There is no direct access to passenger rail within the City of Beaumont. However, RCTC is conducting a study to investigate passenger rail service from Riverside to Coachella Valley with a potential station in the Pass area.

GOLF CART NETWORK

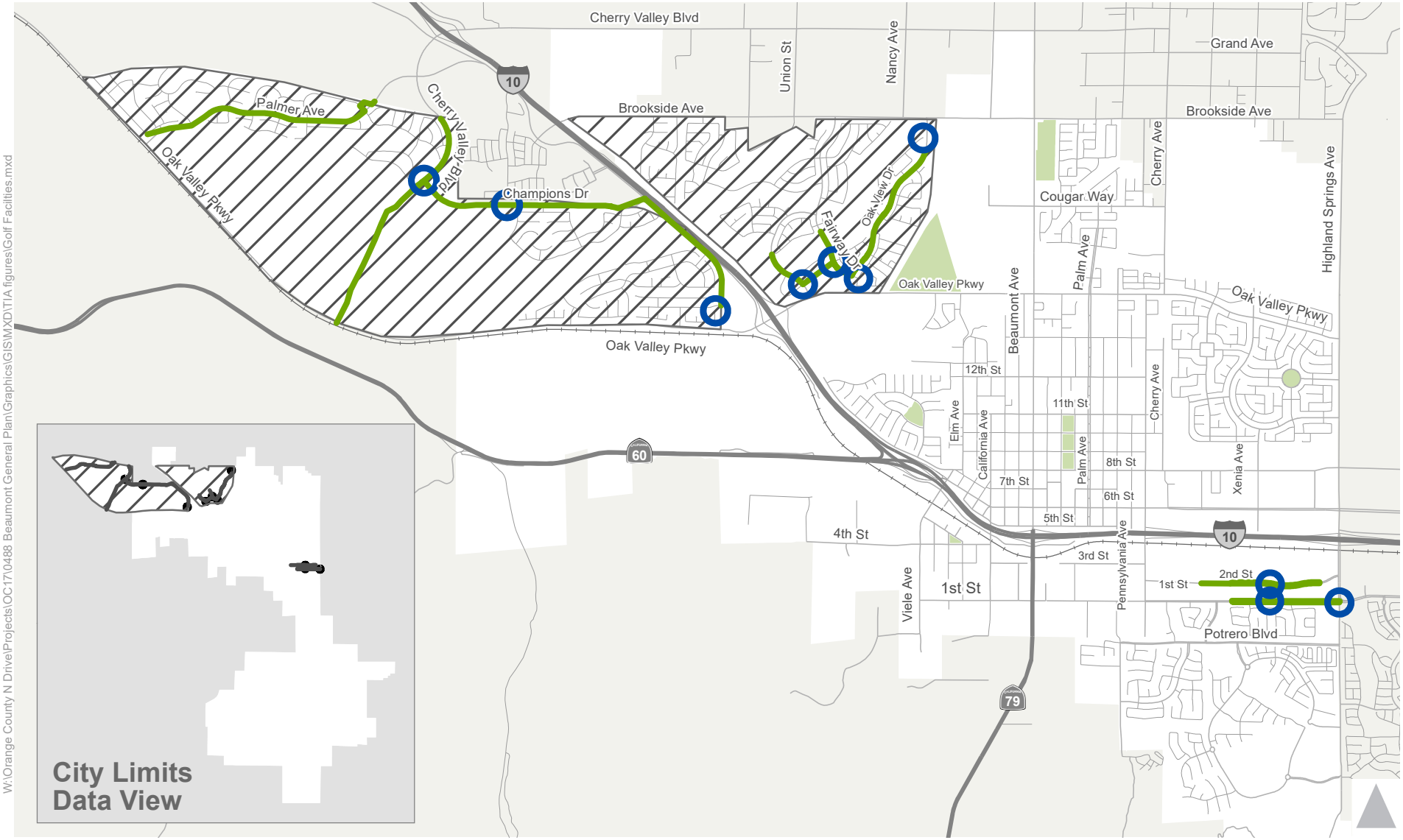
In an effort to promote the use of an alternative form of non-polluting transportation, the City of Beaumont has developed a Golf Cart Transportation Plan (GCTP) (2010, Community & Economic Development Department). This plan introduces golf cart facilities, such as golf cart routes, to link neighborhoods with various attractions, including retail, medical, and recreational facilities. Designated routes are proposed along collector streets. The GCTP defines golf cart facilities as all publicly owned facilities that provide for golf cart travel, including golf cart lanes, routes, and crossings designated by signs or permanent markings, and are shared with pedestrians, bicyclists, and other motorists in the plan area. Golf cart facilities are separated into three categories: golf cart lanes, golf cart route area, and golf course cart crossing zones. **Figure 4-4** show the existing and proposed GCTP facilities.

GOLF CART LANES

Golf cart lanes are outlined as public roadways that are designated by signs and pavement markings for golf cart travel. The plan states that these lanes allow golf carts to travel adjacent to automobile traffic, but within a separated striped space. Golf cart lanes are allowed to share lanes with bicycles. Second Street has golf cart lanes.

GOLF CART ROUTE AREA

Golf cart route areas are travel lanes on residential streets that are shared with pedestrians, bicyclists, and other motorists.



GolfCart_Crossing
GolfCart_Lane
GolfCart_RouteAreas

Figure 4-4
Golf Cart Transportation Plan

GOLF COURSE CART CROSSING ZONES

Golf course cart crossing zones are classified as locations on public streets that allow golf carts to cross at any time other than during darkness on any streets, with the exception of highways.

TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Existing morning (7:00 am to 9:00 am) and evening (4:00 pm to 6:00 pm) peak period intersection vehicle and bicycle and pedestrian counts were collected at 11 study intersections throughout the City of Beaumont during April 2018. Daily roadway segment counts were collected at 26 locations throughout the City of Beaumont during April 2018. All traffic counts were collected during typical weekdays with clear weather and when school was in-session.

Existing (2018) peak hour traffic volumes and lane configurations for the study intersections are shown on **Figure 4-5**. Existing traffic counts are provided in **Appendix A**.

As part of the field inventory, Fehr & Peers also collected the following information:

Lane configurations
Signal phasing
Land uses in the study area
Existing pedestrian and bicycle facilities
On-street parking conditions

INTERSECTION OPERATIONS

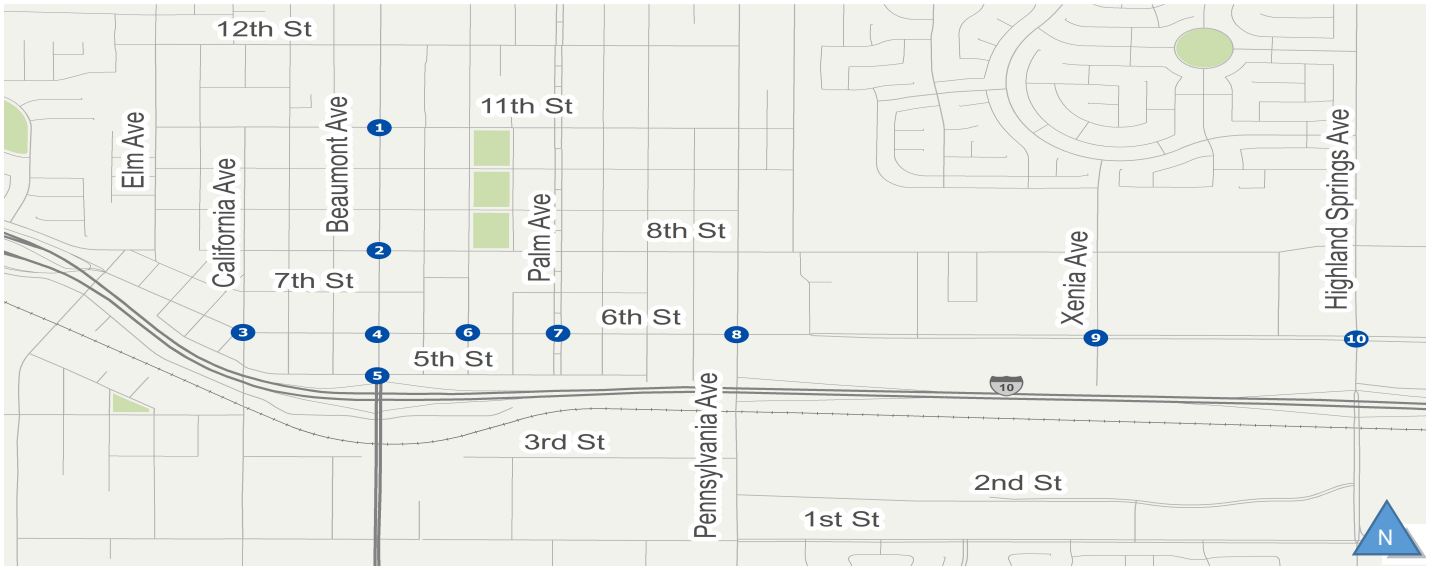
Existing traffic volumes, lane configurations, and signal timings were used to evaluate operations at the study intersections for existing AM and PM peak hour conditions. The results summarized in **Table 4-1** show vehicular LOS at the study intersections. The Existing LOS reports are provided in **Appendix B**.

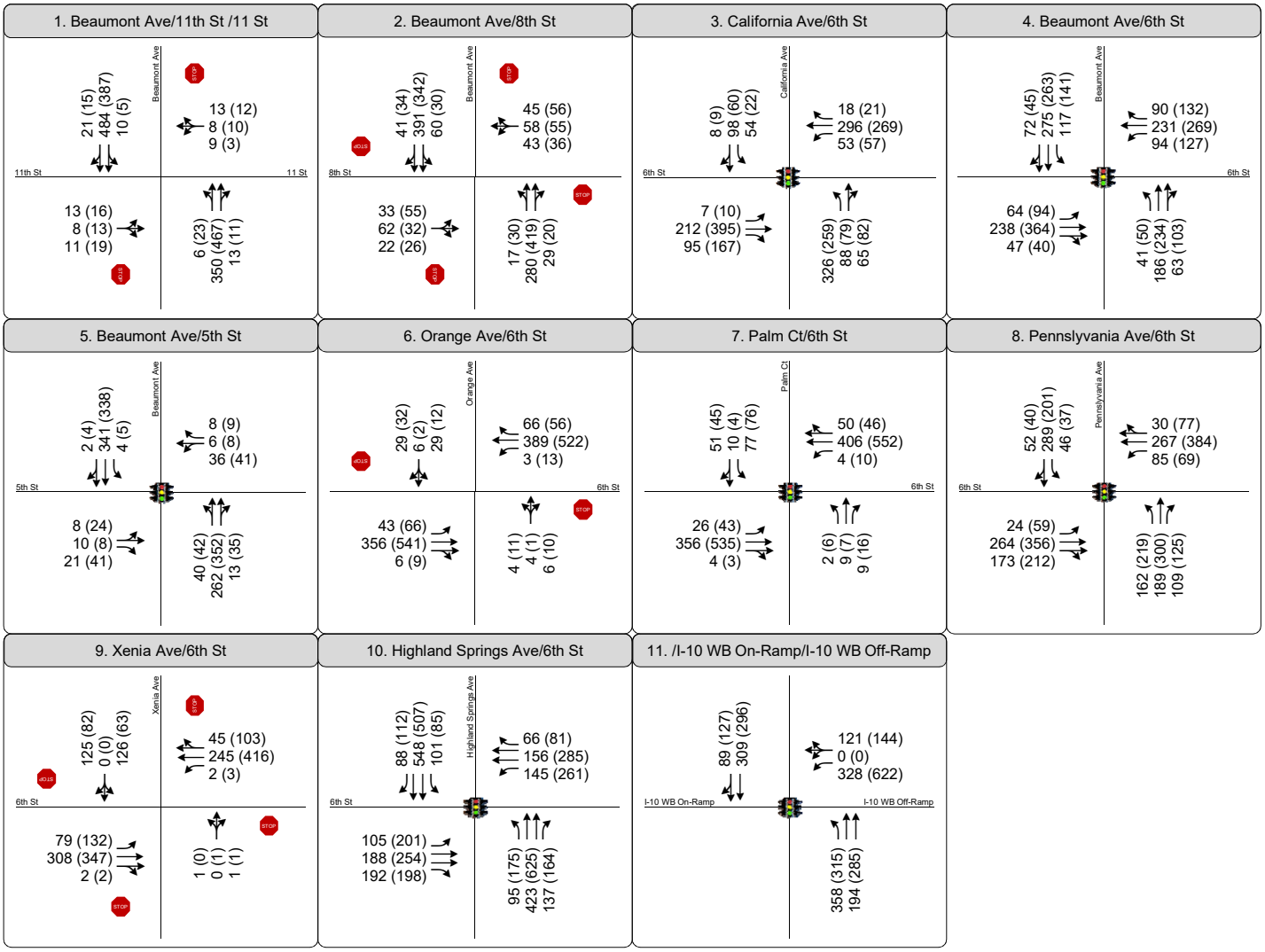
As shown in **Table 4-1**, all intersections operate at an acceptable LOS in both the AM and PM conditions.

TABLE 4-1 EXISTING INTERSECTION OPERATIONS

Intersection		Peak Hour	Existing	
			Delay	LOS
1	Beaumont Avenue/11th Street	AM	18	C
		PM	18	C
2	Beaumont Avenue/Eighth Street	AM	12	B
		PM	13	B
3	Sixth Street/California Avenue	AM	19	B
		PM	19	B
4	Sixth Street/Beaumont Avenue	AM	13	B
		PM	16	B
5	Beaumont Avenue/Fifth Street	AM	23	C
		PM	24	C
6	Sixth Street/Orange Avenue	AM	18	C
		PM	35	D
7	Sixth Street/Palm Avenue	AM	14	B
		PM	15	B
8	Sixth Street/Pennsylvania Avenue	AM	17	B
		PM	18	B
9	Sixth Street/Xenia Avenue	AM	12	B
		PM	12	B
10	Sixth Street/Highland Springs Avenue	AM	38	D
		PM	48	D
11	Beaumont Avenue/I-10 Westbound Ramps	AM	24	C
		PM	30	C

Notes:
1. Delay is calculated using Synchro 10 with HCM 6 Methodology
2. **Bold** type indicates LOS exceeds desired level.
Source: Fehr & Peers, 2019





AM (PM)

Figure 4-5
Peak Hour Traffic Volumes and Lane Configurations
Existing (2018) Conditions

ROADWAY OPERATIONS

As shown in **Table 4-2**, the following roadway segment operates at an unacceptable LOS:

I-10 - Between Pennsylvania Avenue and Highland Springs Avenue (LOS E)

TABLE 4-2 ROADWAY LEVEL OF SERVICE EXISTING CONDITIONS

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Oak Valley Parkway	West of Potrero Boulevard	Major Frontage Road	2	25,000	2,546	0.10	A
Oak Valley Parkway	East of Potrero Boulevard	Urban Arterial	4	50,000	5,379	0.11	A
Oak Valley Parkway	Between I-10 WB Ramps and Oak View Drive	Urban Arterial	4	50,000	16,600	0.33	A
Beaumont Avenue	North of Oak Valley Parkway	Major Highway	4	40,000	16,511	0.41	A
Oak Valley Parkway	West of Starlight Avenue	Major Highway	4	40,000	8,471	0.17	A
Beaumont Avenue	Between Eighth Street and 12th Street	Secondary	4	25,000	12,081	0.48	A
Highland Springs Avenue	South of Oak Valley Parkway	Arterial Highway	2	40,000	15,241	0.38	A
Xenia Avenue	North of Sixth Street	Secondary	4	25,000	2,487	0.10	A
Sixth Street	East of Veile Avenue	Divided Collector	4	25,000	17,150	0.69	B
Beaumont Avenue	Between Fifth Street and Sixth Street	Major Highway	4	25,000	11,093	0.44	A
Sixth Street	East of Beaumont Avenue	Divided Collector	2	25,000	14,059	0.56	A
Pennsylvania Avenue	Between Sixth Street and I-10 WB Ramps	Major Highway	2	40,000	14,009	0.56	A
6th Street	East of Pennsylvania Ave	Major Highway	4	40,000	11,352	0.28	A
Highland Springs Avenue	Between Fifth Street and Sixth Street	Urban Arterial	6	50,000	23,810	0.48	A
Veile Avenue	North of Fourth Street	Divided Collector	2	25,000	2,870	0.11	A
Beaumont Avenue	South of Fourth Street	Expressway	4	60,000	28,000	0.46	A
Pennsylvania Avenue	Between I-10 EB Ramps and Third Street	Major Highway	2	40,000	10,628	0.27	A

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Highland Springs Avenue	Between I-10 EB Ramps and First Street	Urban Arterial	6	50,000	25,760	0.52	A
First Street	Between Pennsylvania Avenue and Highland Springs Avenue	Major Highway	4	40,000	12,901	0.32	A
Beaumont Avenue (SR-79)	South of First Street	Expressway	4	60,000	30,000	0.50	A
Beaumont Avenue (SR-79)	South of California Avenue	Expressway	6	60,000	31,000	0.52	A
SR-60	West of the I-10	Freeway	4	80,000	59,500	0.74	C
I-10	West of SR-60	Freeway	6	120,000	103,700	0.86	D
I-10	Between SR-60 and SR-79	Freeway	8	160,000	135,700	0.85	D
I-10	Between SR-79 and Pennsylvania Avenue	Freeway	8	160,000	139,300	0.87	D
I-10	Between Pennsylvania Avenue and Highland Springs Avenue	Freeway	8	160,000	146,900	**0.92**	**E**

Note:
1. 2007 Beaumont General Plan Roadway Classifications were used for analysis in this scenario.
2. Roadway segment operating below acceptable LOS are noted in **bold**.

Source: Fehr & Peers, 2019

5. EXISTING (2018) PLUS PROJECT CONDITIONS

This section provides the intersection, roadway segment, and freeway segment operations analysis for locations in the study area. Traffic volumes were developed based on the methodologies described in Chapter 3.

TRAFFIC VOLUMES

As described in Chapter 3, the traffic volumes for this scenario consist of existing counts plus the addition of growth derived from RIVTAM. This scenario includes the existing land use conditions outside of the City plus the addition of the General Plan at buildout within the City. This condition is used to evaluate the net change in traffic conditions and to identify the potential traffic impacts associated with the project. Traffic volumes for the Existing (2018) Plus Project Conditions scenario are shown in **Figure 5-1**.

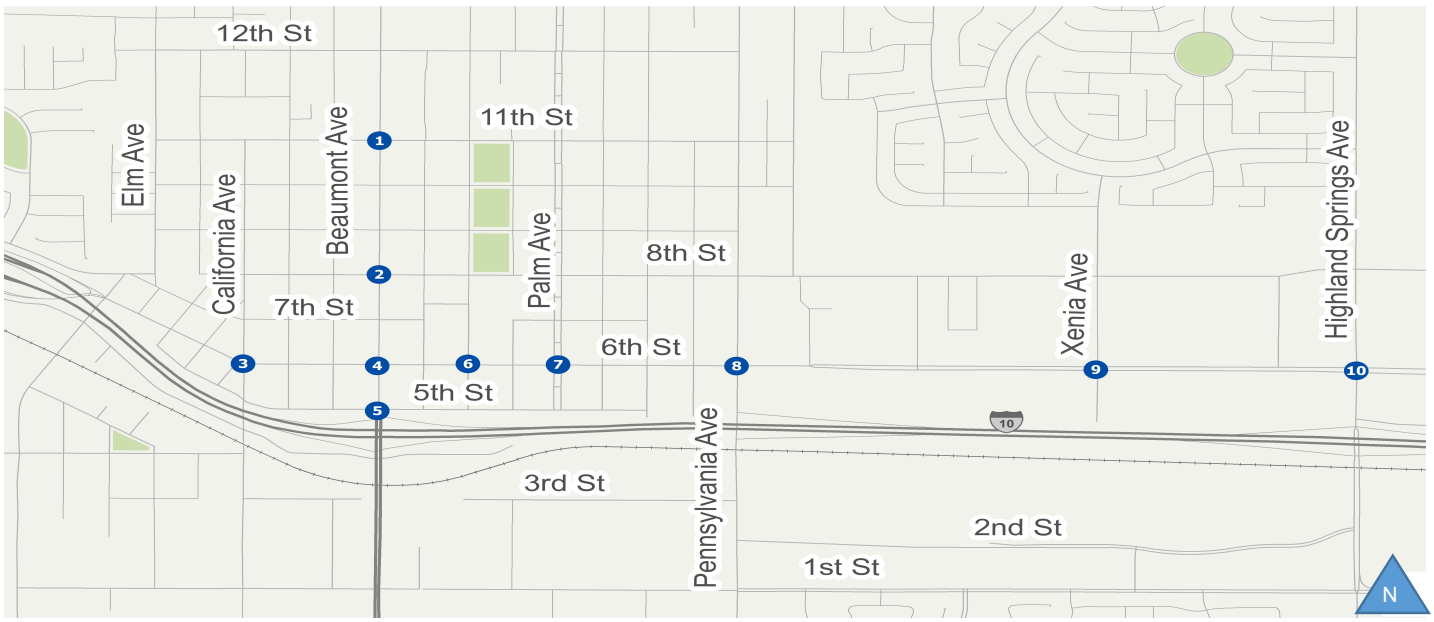
PLANNED ROADWAY AND INTERSECTION IMPROVEMENTS

The General Plan Update proposes roadway and intersection improvements to increase connectivity throughout the City. In chapter 3, **Figure 3-1** shows the proposed roadway network proposed as part of the Mobility Element.

In addition to the roadway network connectivity proposed in the Mobility Element, the Beaumont Downtown Area Plan proposes intersection and roadway modifications to promote a downtown district within the City (which prioritizes bicycles and pedestrians). The DAP recommends that Beaumont Avenue, between 12th Street and Eighth Street, be reduced to two-lanes; and that Sixth Street, between California Avenue and Palm Avenue, be reduced to two-lanes. Modifications to the intersections, listed below, were also proposed by the DAP. The following recommended modifications are denoted by their corresponding study intersection identification numbers, as shown on **Figure 2-3:**

Beaumont Avenue/11th Street (#1)

- Install a traffic signal
- The northbound approach of the intersection will be modified from one shared left-through lane and one shared through-right lane to one left-turn lane and one shared through-right lane



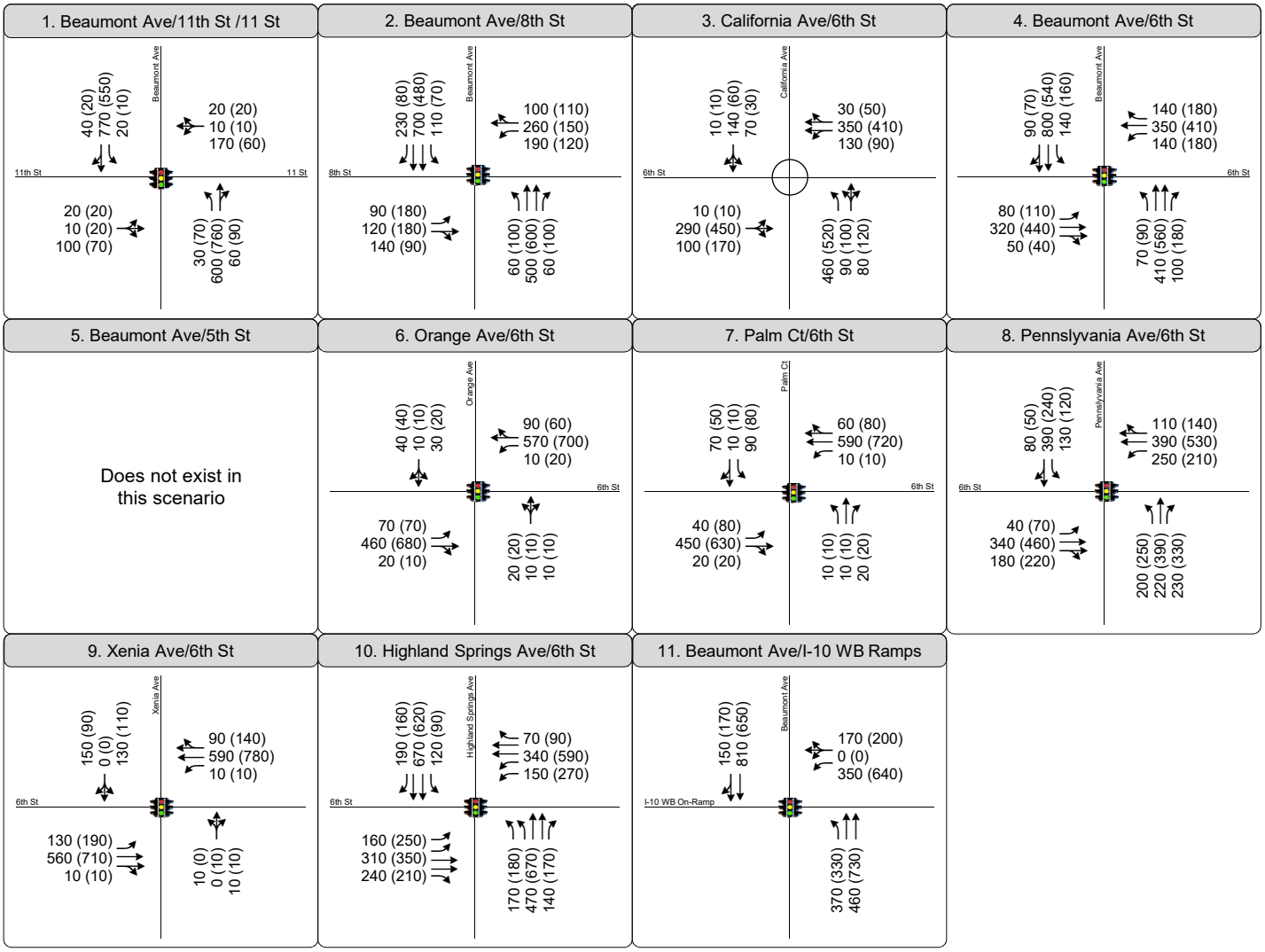


Figure 5-1
Peak Hour Traffic Volumes and Lane Configurations
Existing (2018) Plus Project Conditions

- The southbound approach of the intersection will be modified from one shared left-through lane and one shared through-right lane to one left-turn lane and one shared through-right lane

Beaumont Avenue/Eighth Street (#2)

- The northbound approach of the intersection will be modified from one shared left-through lane and one shared through-right lane to one left-turn lane, two through lanes, and one right-turn lane
- The southbound approach of the intersection will be modified from one shared through-left turn lane and one shared through-right turn lane to one left-turn lane, two through lanes, and one right-turn lane
- The eastbound approach of the intersection will be modified from one shared through-left turn-right turn lane to one left-turn lane, and one shared through-left turn lane
- The westbound approach of the intersection will be modified from one shared through-left turn-right turn lane to one left-turn lane, and one shared through-left turn lane

Sixth Street/California Avenue (#3)

- Install a two-lane roundabout

Sixth Street/Beaumont Avenue (#4)

- The northbound approach of the intersection will be modified from one left-turn lane, one through lane, and one shared through-right lane to one left-turn lane, two through lanes, and one right-turn lane

Fifth Street/Beaumont Avenue (#5)

- Removal of traffic signal

Sixth Street/Orange Avenue (#9)

- Install a traffic signal

Sixth Street/Highland Springs Avenue (#10)

- The northbound approach of the intersection will be modified from one left-turn lane, two through lanes, and one right-turn lane to two left-turn lanes, two through lanes, and one right-turn lane
- The eastbound approach of the intersection will be modified from one left-turn lane, two through lanes, and one right-turn lane to two left-turn lanes, two through lanes, and one right-turn lane

- The westbound approach of the intersection will be modified from one left-turn lane, two through lanes, and one right-turn lane to two left-turn lanes, two through lanes, and one right-turn lane

Beaumont Avenue/I-10 Westbound Ramps (#11)

- The northbound approach of the intersection will be modified from one left-turn lane and two through lanes to two left-turn lanes and two through lanes

INTERSECTION OPERATION ANALYSIS

Existing (2018) Plus Project traffic volumes, lane configurations, and signal timings were used to evaluate operations at the study intersections for AM and PM peak hour conditions. The results are summarized in **Table 5-1**, showing vehicular LOS at the study intersections. The Existing (2018) Plus Project LOS report is provided in **Appendix B**. As shown in **Table 5-1**, all study intersections are forecast to operate at an acceptable LOS in the Existing Year (2018) Plus Project Conditions.

TABLE 5-1 EXISTING (2018) PLUS PROJECT INTERSECTION CONDITIONS

	Intersection	Peak Hour	Existing Plus Project	
			Delay	LOS
1	Beaumont Avenue/11th Street	AM	9	A
		PM	6	A
2	Beaumont Avenue/Eighth Street	AM	19	B
		PM	17	B
3	Sixth Street/California Avenue	AM	24	C
		PM	26	C
4	Sixth Street/Beaumont Avenue[1]	AM	18	B
		PM	21	C
5	Beaumont Avenue/Fifth Street[2]	AM	-	-
		PM	-	-
6	Sixth Street/Orange Avenue	AM	6	A
		PM	6	A
7	Sixth Street/Palm Avenue	AM	15	B
		PM	16	B
8	Sixth Street/Pennsylvania Avenue	AM	31	C
		PM	26	C
9	Sixth Street/Xenia Avenue	AM	11	B
		PM	10	B
10	Sixth Street/Highland Springs Avenue	AM	37	D
		PM	36	D
11	Beaumont Avenue/I-10 Westbound Ramps	AM	28	C
		PM	23	C

Notes:
1. LOS E is an acceptable LOS for intersection 4 as part of the Beaumont Downtown Area Plan
2. Intersection 5 does not exist in the future year.
3. Delay is calculated using Synchro using HCM 6th Edition Methodology
4. **Bold** type indicates LOS exceeds desired level.
Source: Fehr & Peers, 2019

ROADWAY OPERATIONS

As shown in **Table 5-2**, the following roadway segment operates at an unacceptable LOS:

- I-10 – Between Beaumont Avenue (SR-79) and Pennsylvania Avenue (LOS E)
- I-10 - Between Pennsylvania Avenue and Highland Springs Avenue (LOS E)

TABLE 5-2 ROADWAY LEVEL OF SERVICE EXISTING PLUS PROJECT CONDITIONS

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Oak Valley Parkway	West of Potrero Boulevard	Arterial Frontage	4	45,000	6,400	0.14	A
Oak Valley Parkway	East of Potrero Boulevard	Arterial Frontage	4	45,000	22,400	0.50	A
Oak Valley Parkway	Between I-10 WB Ramps and Oak View Drive	Arterial Frontage	4	45,000	30,000	0.67	B
Beaumont Avenue	North of Oak Valley Parkway	Arterial Highway	4	45,000	26,000	0.58	A
Oak Valley Parkway	West of Starlight Avenue	Arterial Highway	4	45,000	10,700	0.24	A
Beaumont Avenue	Between Eighth Street and 12th Street	Downtown Streets	2	25,000	17,000	0.68	B
Highland Springs Avenue	South of Oak Valley Parkway	Arterial Highway	4	45,000	14,500	0.32	A
Xenia Avenue	North of Sixth Street	Arterial Highway	4	45,000	3,900	0.09	A
Sixth Street	East of Veile Avenue	Downtown Streets	2	25,000	19,600	0.75	C
Beaumont Avenue	Between Fifth Street and Sixth Street	Downtown Streets	4	45,000	19,100	0.42	A
Sixth Street	East of Beaumont Avenue	Downtown Streets	2	25,000	15,100	0.60	B
Pennsylvania Avenue	Between Sixth Street and I-10 WB Ramps	Major Highway	4	45,000	17,700	0.39	A
6th Street	East of Pennsylvania Ave	Downtown Streets	4	45,000	17,100	0.38	A
Highland Springs Avenue	Between Fifth Street and Sixth Street	Urban Arterial Highway	6	55,000	25,300	0.46	A
Veile Avenue	North of Fourth Street	Arterial Highway	2	25,000	10,100	0.40	A
Beaumont Avenue	South of Fourth Street	Expressway	6	60,000	34,800	0.58	A

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Pennsylvania Avenue	Between I-10 EB Ramps and Third Street	Major Highway	4	45,000	22,000	0.49	A
Highland Springs Avenue	Between I-10 EB Ramps and First Street	Urban Arterial Highway	6	55,000	33,400	0.61	B
First Street	Between Pennsylvania Avenue and Highland Springs Avenue	Major Highway	4	45,000	17,200	0.38	A
Beaumont Avenue (SR-79)	South of First Street	Expressway	6	60,000	31,100	0.52	A
Beaumont Avenue (SR-79)	South of California Avenue	Expressway	6	60,000	41,600	0.69	B
SR-60	West of the I-10	Freeway	4	80,000	60,900	0.76	C
I-10	West of SR-60	Freeway	6	120,000	107,900	0.90	D
I-10	Between SR-60 and SR-79	Freeway	8	160,000	140,400	0.88	D
I-10	Between SR-79 and Pennsylvania Avenue	Freeway	8	160,000	144,200	**0.90**	**E**
I-10	Between Pennsylvania Avenue and Highland Springs Avenue	Freeway	8	160,000	152,500	**0.95**	**E**

Note:
1. Roadway Classifications from the 2019 Beaumont General Plan Update were used for analysis in this scenario.
2. Roadway segment operating below acceptable LOS are noted in **bold**.

Source: Fehr & Peers, 2019

IMPACT ASSESSMENT

INTERSECTION IMPACTS

As shown in **Table 5-1,** all intersections operate at an acceptable LOS. There are no intersection impacts in the Existing Plus Project conditions.

ROADWAY IMPACTS

Table 5-3 compares the changes in delay and LOS at intersections that operate at LOS E or F between "No Project" and "Plus Project" scenarios to determine project impacts. Changes are compared to the allowable change outlined in Chapter 3

TABLE 5-3 EXISTING (2018) PLUS PROJECT IMPACT ROADWAY SEGMENT IMPACTS SUMMARY

Roadway	Segment	Existing No Project V/C	Existing Plus Project V/C	Δ in V/C	Significant Impact?
I-10	Beaumont Avenue (SR-79) and Pennsylvania Avenue	0.87	0.90	**0.03**	**Yes**
I-10	Between Pennsylvania Avenue and Highland Springs Avenue	0.92	0.95	**0.03**	**Yes**

Note:
1. Significant impacts are noted in **bold**.

Source: Fehr & Peers, 2019

6. CUMULATIVE (2040) CONDITIONS

This section provides the intersection, roadway segment, and freeway segment operations analysis for locations in the study area. Traffic volumes were developed based on the methodologies described in Chapter 3.

TRAFFIC VOLUMES

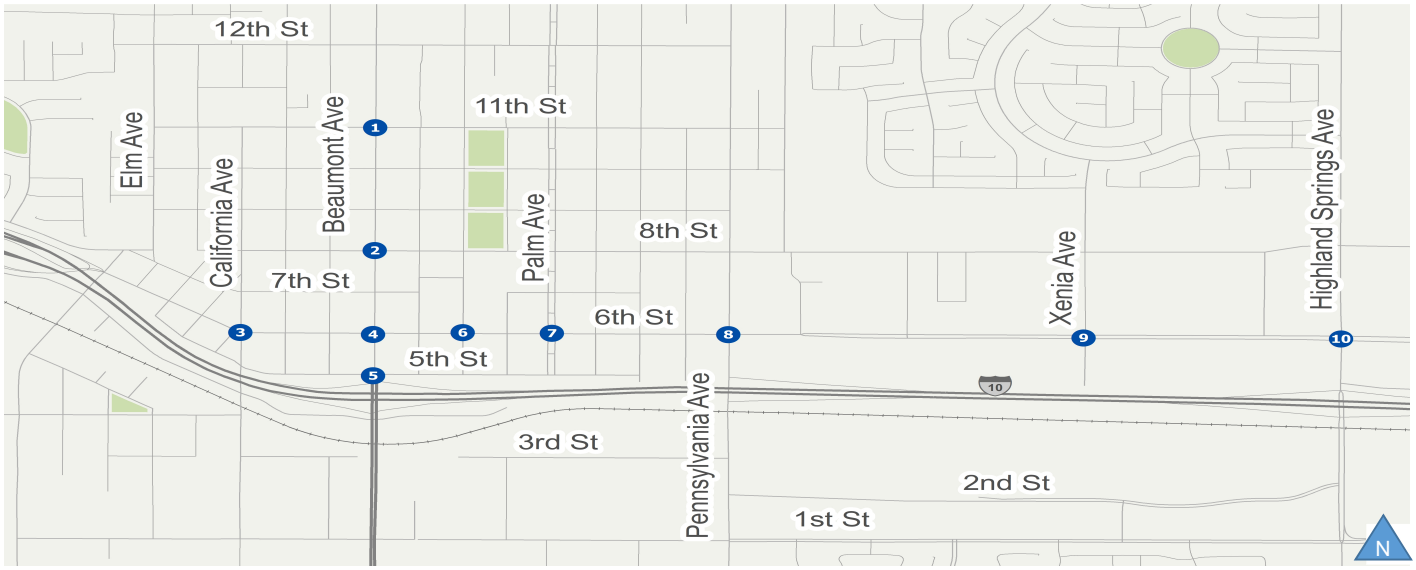
As described in Chapter 3, the traffic volumes for this scenario consist of existing counts plus the addition of growth derived from RIVTAM. Traffic volumes for the Cumulative Year (2040) Conditions scenario are shown in **Figure 6-1.**

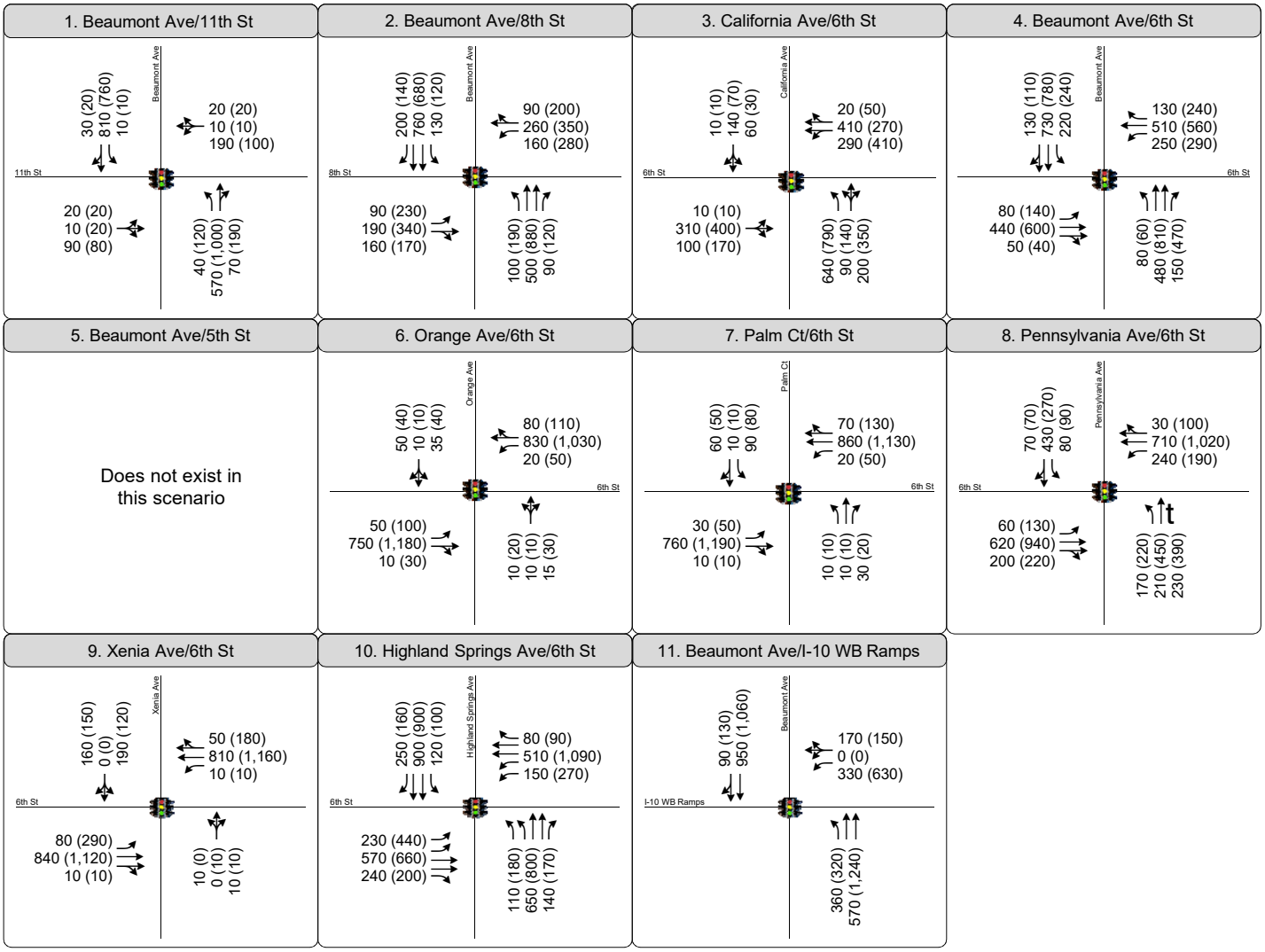
PLANNED ROADWAY AND INTERSECTION IMPROVEMENTS

The same future roadway improvements assumed in Existing (2018) Plus Project Conditions were assumed in this scenario.

INTERSECTION OPERATION ANAYSIS

Future traffic volumes, lane configurations, and signal timings were used to evaluate operations at the study intersections for Cumulative Year (2040) AM and PM peak hour conditions. The results are summarized in **Table 6-1**, showing vehicular LOS at the study intersections. The Cumulative Year (2040) LOS report is provided in **Appendix B**. As shown **Table 6-1**, all intersections operate at an acceptable LOS under both the AM and PM peak hour.





AM (PM)

Figure 6-1
Peak Hour Traffic Volumes and Lane Configurations
Cumulative (2040) Conditions

TABLE 6-1 CUMULATIVE (2040) YEAR INTERSECTION CONDITIONS

	Intersection	Peak Hour	Future Year	
			Delay	LOS
1	Beaumont Avenue/11th Street	AM	14	B
		PM	15	B
2	Beaumont Avenue/Eighth Street	AM	23	C
		PM	53	D
3	Sixth Street/California Avenue	AM	21	C
		PM	32	D
4	Sixth Street/Beaumont Avenue[1]	AM	39	D
		PM	67	E
5	Beaumont Avenue/Fifth Street[2]	AM	-	-
		PM	-	-
6	Sixth Street/Orange Avenue	AM	7	A
		PM	12	B
7	Sixth Street/Palm Avenue	AM	20	B
		PM	41	D
8	Sixth Street/Pennsylvania Avenue	AM	47	D
		PM	54	D
9	Sixth Street/Xenia Avenue	AM	14	B
		PM	19	B
10	Sixth Street/Highland Springs Avenue	AM	50	D
		PM	55	D
11	Beaumont Avenue/ I-10 Westbound Ramps	AM	31	C
		PM	29	C

Notes:
1. LOS E is an acceptable LOS for intersection 4 as part of the Beaumont Downtown Area Plan
2. Intersection 5 is not exist in the future year (2040).
3. Delay is calculated using Synchro using HCM 6th Edition Methodology
4. **Bold** type indicates LOS exceeds desired level.
Source: Fehr & Peers, 2019

ROADWAY SEGMENT OPERATION ANALYSIS

Roadway segments LOS analysis is presented in **Table 6-2** for the Cumulative Year (2040) Conditions. As shown in **Table 6-2**, the following roadway segments operate at an unacceptable LOS:

Beaumont Avenue (SR-79) – South of California Avenue (LOS F)
SR-60 Freeway West of the I-10 (LOS F)
I-10 Freeway West of SR-60 (LOS F)
I-10 Freeway Between SR-60 and SR-79 (LOS F)
I-10 Freeway Between SR-79 and Pennsylvania Avenue (LOS F)
I-10 Freeway Between Pennsylvania Ave and Highland Springs Avenue (LOS F)

TABLE 6-2 ROADWAY SEGMENT OPERATIONS FUTURE YEAR CONDITIONS

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Oak Valley Parkway	West of Potrero Boulevard	Arterial Frontage	4	45,000	9,700	0.22	A
Oak Valley Parkway	East of Potrero Boulevard	Arterial Frontage	4	45,000	27,700	0.62	B
Oak Valley Parkway	Between I-10 WB Ramps and Oak View Drive	Arterial Frontage	4	45,000	33,500	0.74	C
Beaumont Avenue	North of Oak Valley Parkway	Arterial Highway	4	45,000	28,100	0.62	B
Oak Valley Parkway	West of Starlight Avenue	Arterial Highway	4	40,000	12,400	0.31	A
Beaumont Avenue	Between Eighth Street and 12th Street	Downtown Streets	2	25,000	19,400	0.78	C
Highland Springs Avenue	South of Oak Valley Parkway	Arterial Highway	4	45,000	15,900	0.35	A
Xenia Avenue	North of Sixth Street	Major Highway	4	45,000	5,000	0.11	A
Sixth Street[4]	East of Veile Avenue	Downtown Streets	2	25,000	25,000	1.00	E
Beaumont Avenue	Between Fifth Street and Sixth Street	Downtown Streets	4	45,000	23,700	0.53	A
Sixth Street[4]	East of Beaumont Avenue	Downtown Streets	2	25,000	23,800	0.95	E
Pennsylvania Avenue	Between Sixth Street and I-10 WB Ramps	Major Highway	4	45,000	22,800	0.51	A
Sixth Street	East of Pennsylvania Ave	Downtown Streets	4	45,000	25,100	0.56	A

Roadway	Segment	Classification[1]	Number of Lanes	Capacity	Volume	V/C Ratio	LOS
Highland Springs Avenue	Between Fifth Street and Sixth Street	Urban Arterial Highway	6	55,000	30,800	0.56	A
Veile Avenue	North of Fourth Street	Arterial Highway	2	25,000	15,300	0.61	B
Beaumont Avenue	South of Fourth Street	Expressway	6	60,000	46,300	0.77	C
Pennsylvania Avenue	Between I-10 EB Ramps and Third St	Major Highway	4	45,000	27,800	0.62	B
Highland Springs Avenue	Between I-10 EB Ramps and First Street	Urban Arterial Highway	6	55,000	40,200	0.73	C
First Street	Between Pennsylvania Avenue and Highland Springs Avenue	Major Highway	4	45,000	23,800	0.53	A
Beaumont Avenue (SR-79)	South of First Street	Expressway	6	60,000	40,800	0.68	B
Beaumont Avenue (SR-79)	South of California Avenue	Expressway	6	60,000	62,900	**1.05**	**F**
SR-60	West of the I-10	Freeway	4	80,000	109,800	**1.37**	**F**
I-10	West of SR-60	Freeway	6	120,000	156,700	**1.31**	**F**
I-10	Between SR-60 and SR-79	Freeway	8	160,000	222,000	**1.39**	**F**
I-10	Between SR-79 and Pennsylvania Avenue	Freeway	8	160,000	220,900	**1.38**	**F**
I-10	Between Pennsylvania Avenue and Highland Springs Avenue	Freeway	8	160,000	234,700	**1.47**	**F**

Notes:
1. Roadway Classifications from the 2019 Beaumont General Plan Update were used for analysis in this scenario.
2. LOS E is an acceptable LOS for non-automobile prioritize roadway.
3. **Bold** indicates an LOS below the acceptable threshold.

Source: Fehr & Peers, 2019

7. VEHICLE MILES TRAVELED (VMT) ANALYSIS

SB 743, signed by the Governor in 2013, changed the way transportation impacts are identified. Specifically, the legislation has directed the Office of Planning and Research (OPR) to look at different metrics for identifying transportation as a CEQA impact. The Final OPR guidelines, released in November 2017, identify vehicle miles of travel (VMT) as the preferred metric for traffic impact analysis moving forward. The Natural Resources Agency completed the rule making process to modify the CEQA guidelines in 2019 and VMT is the required CEQA metric as of July 1, 2020.

This chapter is particularly important, as VMT assessment is the basis for identifying CEQA impacts associated with project for transportation. The analyses provided in previous chapters focused on LOS.

VMT BACKGROUND

OPR has provided a Technical Advisory within the guidelines to "map out" potential criteria that can be applied by local agencies. The criteria, as currently written, is outlined below:

For residential projects, the project impact would be less-than-significant, if the resulting project VMT ratio is 15% below the existing regional or city VMT ratio.

For office projects, the project impact would be less-than-significant, if the resulting project VMT ratio is 15% below the existing regional or City VMT ratio.

For retail projects, the project impact is considered less-than-significant, if the project is local-serving retail. Retail which increases VMT compared to previous shopping patterns may be considered significant, such as large shopping centers with intended regional draw.

The legislative intent of SB 743 is to balance the needs of congestion management with statewide goals for infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions. However, the OPR recommended VMT threshold of 15% below baseline conditions is almost exclusively based on GHG reduction goals identified in the Air Resources Board's Mobile Source Strategy document. While this is a legislative intent objective of SB 743, the connection to the infill development and active transportation intent is less clear.

The OPR guidelines recognize that land use context matters when it comes to VMT mitigations options, thresholds, and effectiveness. The City of Beaumont adopted Traffic Impact Study (TIS) guidelines in June 2020 that address VMT impact criteria and analysis methodology. VMT per service population (total employment plus population) was utilized and compared back to the City's existing VMT per Service

Population ratio. The City's VMT threshold indicates that a project impact would be less-than-significant if the resulting project's VMT is 3% below the existing citywide VMT. These guidelines were applied to the Project in this assessment.

VMT ANALYSIS

Fehr & Peers utilized the RIVTAM travel demand forecasting model to estimate VMT for the Project and the City. The VMT estimates incorporate the "full accounting" methodology in that it accounts for the complete length of the trip from the origin to the destination and assigns 100% of that trip distance to the City of Beaumont. To estimate the existing VMT, Fehr & Peers had to estimate VMT from both the Base Year (2016) and Future Year (2040) horizons in the RIVTAM Model. The VMT per service population was estimated for both of these horizons and then linear interpolation was utilized to estimate the existing (2018, consistent with our traffic count collection) VMT for the project.

The base year, existing year, and future year VMT estimates are summarized in **Table 7-1**. **Table 7-2** summarizes the VMT analysis and compares the City's existing and future year VMT. As shown in **Table 7-2**, the existing VMT per service population in the City is 24.4. 3% below the Citywide average would be mean that the General Plan would results in a significant impact if the VMT per service population was greater than 23.7. The Project (implementation of the General Plan including the SOI area) results in VMT per service population of 29.7, which is 25% higher than the threshold of significance established by the City. Based on the City's thresholds, this project results in a ***significant impact*** and would be subject to mitigation.

It should be noted that, even though the General Plan buildout will result in a significant impact, the City's VMT per service population will be 12% lower than the WRCOG regional average and development in Beaumont (instead of other areas in the WRCOG region) would generally benefit the environment.

TABLE 7-1 BEAUMONT GENERAL PLAN UPDATE VMT SUMMARY

Scenario	2016 Base Year			2018 Interpolated Conditions			2040 Future Year (Including General Plan Buildout)		
	Total VMT	Service Population	VMT per Service Population	Total VMT	Service Population	VMT per Service Population	Total VMT	Service Population	VMT per Service Population
City of Beaumont (Citywide) VMT	1,085,515	46,806	23.2	1,318,032	54,093	24.4	3,875,716	134,255	28.9
Sphere of Influence (SOI) Only VMT	138,764	3,456	40.2	218,563	5,914	37.0	1,096,347	32,949	33.3
Total Beaumont General Plan Area (Citywide plus SOI)	1,224,279	50,262	24.4	1,536,594	60,007	25.6	4,972,063	167,204	29.7
WRCOG VMT	67,556,043	2,263,510	29.8	71,464,388	2,374,232	30.1	114,456,180	3,411,485	33.6

Notes:
1. VMT represents daily VMT between Tuesdays and Thursdays. VMT analysis does not reflect weekend or holiday travel.
Source: Fehr & Peers, 2019

TABLE 7-2 VMT PER SERVICE POPULATION ANALYSIS

Scenario	Existing (2018)	Future (2040)	Delta
	VMT per Service Population	VMT per Service Population	
City of Beaumont VMT	24.4	28.9	4.5 (16%)
Sphere of Influence Only VMT	37.0	33.3	-3.7 (-11%)
Total Beaumont General Plan Update Area	25.6	29.7	4.1 (14%)

Source: Fehr & Peers, 2020

Table 7-3 compares the Future Year VMT for the general plan area with and without the general plan buildout. As shown in **Table 7-3**, the buildout of the general plan significantly reduces the VMT per service population throughout the general plan area by approximately 50%. The mixed used development associated with the general plan improves VMT by providing more availability to different land uses within the City and shortening travel trips.

TABLE 7-3 FUTURE YEAR VMT PER SERVICE POPULATION COMPARISON

Scenario	Future (2040) No Build	Future (2040) General Plan Buildout	Delta
	VMT per Service Population	VMT per Service Population	
City of Beaumont VMT	43.8	28.9	-14.9 (-51%)
Sphere of Influence Only VMT	158.9	33.3	-125.6 (-377%)
Total Beaumont General Plan Update Area	52.1	29.7	-22.4 (-75%)

Source: Fehr & Peers, 2020

Table 7-4 below shows comparison of VMT and VMT per service population for areas around Beaumont. As shown in **Table 7-4**, VMT per service population in Beaumont is lower than other nearby cities within Riverside County with the addition of the General Plan. VMT analysis outputs are provided in **Appendix C**.

TABLE 7-4 VMT REGIONAL COMPARISON – FUTURE YEAR

Area	VMT	VMT per Service Population[1]
Beaumont	3,875,716	28.9
Sphere of Influence Only VMT	1,096,347	33.3
Total Beaumont General Plan Area	4,972,063	29.7
Regional Comparison		
WRCOG	114,456,180	33.6
Nearby City Comparison		
Banning	2,055,092	31.3
Calimesa	946,917	36.2
San Jacinto	3,245,972	33.1
Moreno Valley	8,424,484	27.6
Hemet	4,216,271	28.4

Notes:
1. VMT represents daily VMT between Tuesdays and Thursdays. VMT analysis does not reflect weekend or holiday travel.
Source: Fehr & Peers, 2019

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) measures are effective ways to reduce VMT, daily vehicle trips, and peak hour vehicle trips. These measures are not captured in the travel demand model (such as RIVTAM) utilized in this analysis. As the General Plan Buildout results in a significant impact, goals listed in the Mobility Element that promote TDM policies could further reduce the VMT. These goals include policies that require new residential and retail developments implement TDM measures to reduce VMT. Many TDM programs can be residential, employment, and transit specific and should be tailored to meet the suburban needs of the City. The California Air Resource Board's Zero Carbon Buildings Study identified TDM strategies and programs that can be used to reduce VMT and shorten trip lengths. Listed below are some examples of TDM measures that could be utilized to reduce VMT:

PARKING

- A "park once" policy that encourages employees, residents, and visitors to park once and walk to multiple destinations.
- Unbundled parking programs that would allow parking spaces to be sold or rented separately without inclusion into rental cost.
- Shared parking between multiple land uses developments can increase parking utilization during off-peak parking demand hours.
- Paid parking programs, especially for high turnover at the most desirable locations, such as the Downtown Area Plan

COMMUTE

- Transportation Network Companies (TNCs) Partnerships to connect individuals to nearest transit stations or encourage carpooling.
- Market programs that educate visitors, residents, and employees about alternatives to driving.
- Carshare programs, such as Zip Car, are short-term rental services that can be located near key points of interest encouraging reduced vehicle ownership
- Carpool and vanpool programs provide payments to individuals who participate in in each model.
- Telecommuting programs that allow individuals to work from home.

PEDESTRIAN AND BICYCLE

- Secure bicycle parking facilities on site that may include restricted access to specific facilities.t
- Bikeshare system that provide individuals with loaner bikes for short, one-way trips.
- Bicycle riders guide with bicycle routes, lanes, and paths to between key points of interest and bicycle parking facilities.
- Walking programs that encourage employees to walk to work and may include mapping walking routes, creating walking groups or buddies, and providing incentives.

It should also be noted that the TDM strategies mentioned above do not take into consideration some foreseeable travel changes including increased use of TNCs, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the federal and state legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupancy vehicles on the roadway.

The California Air Pollution Control Officers Association (CAPCOA) documentation identifies the maximum achievable VMT reduction with TDM measures to be 10% in a suburban setting. Given that the general plan buildout is estimated to generate VMT per service population that is approximately 25% higher than the threshold of significance, TDM measures would likely not reduce VMT per service population to a level below the City's threshold of significance. Therefore, the general plan buildout will result in a ***significant-and-unavoidable impact***.

8. IMPACT ANALYSIS

This chapter summarizes the environmental impacts of the proposed project and recommends feasible roadway and intersection improvements where possible. The results are summarized below.

EXISTING (2018) PLUS PROJECT IMPACTS

INTERSECTION IMPROVEMENT IMPACTS

As shown in Chapter 5, all study intersections were forecast to operate at an acceptable LOS in the Existing (2018) Plus Project Conditions. Therefore, there are no impacts in this scenario.

ROADWAY IMPROVEMENT IMPACTS

As shown in Chapter 6, the following roadway segment operates at an unacceptable LOS:

I-10 Freeway - Between Pennsylvania Ave and Highland Springs Ave (LOS E)

The General Plan combined with the regional growth, results in an impact to the I-10. To improve the impact additional lanes would be required. It should be noted that, the 2016 RTP/SCS does not include any lane widening improvements to I-10 Freeway between Pennsylvania Avenue and Highland Springs Avenue.

CUMULATIVE YEAR (2040) IMPACTS

INTERSECTION IMPACTS

As shown in Chapter 6, none of the study intersections were forecast to operate deficiently in the Cumulative (2040) Year Conditions. Therefore, there are no impacts in this scenario.

ROADWAY IMPACTS

As shown in Chapter 6, the following roadway segments operate at an unacceptable LOS:

Beaumont Avenue (SR-79) – South of California Avenue (LOS F)
SR-60 Freeway West of the I-10 (LOS F)
I-10 Freeway West of SR-60 (LOS F)

I-10 Freeway Between SR-60 and SR-79 (LOS F)
I-10 Freeway Between SR-79 and Pennsylvania Avenue (LOS F)
I-10 Freeway Between Pennsylvania Avenue and Highland Springs Avenue (LOS F)

The General Plan combined with the regional growth results in an impact to the SR-79, SR-60, and I-10. To improve operations at these facilities, additional lanes would be required. The 2016 RTP/SCS does not include any lane widening improvements to any of these facilities.

APPENDIX A: TRAFFIC COUNTS

Prepared by National Data & Surveying Services

Beaumont Ave & 11th St

Peak Hour Turning Movement Count

ID: 18-06059-001
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Beaumont Ave — SOUTHBOUND

AM	21	484	9	1	377	AM
NOON	0	0	0	0	0	NOON
PM	15	387	5	0	495	PM

11th St — EASTBOUND

AM	NOON	PM	
35	0	47	
0	0	0	0
13	0	16	0
8	0	13	1
11	0	19	0

WESTBOUND — 11th St

PM	NOON	AM	
12	0	13	0
10	0	8	1
3	0	9	0
0	0	0	0
29	0	30	

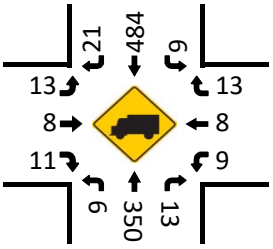
NORTHBOUND — Beaumont Ave

PM	410	1	22	467	11	PM
NOON	0	0	0	0	0	NOON
AM	504	0	6	350	13	AM

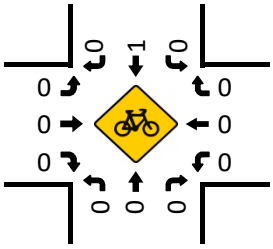
CONTROL: 2-Way Stop (EB/WB)

TEV	946 AM	0 NOON	981 PM
PHF	0.89		0.93

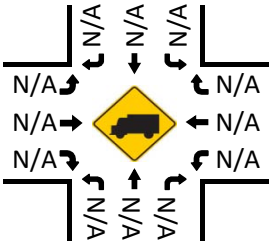
Total Vehicles (AM)



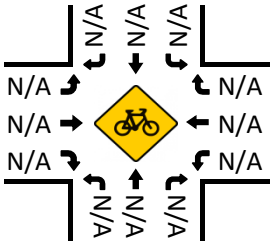
Bikes (AM)



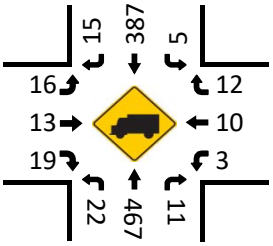
Total Vehicles (Noon)



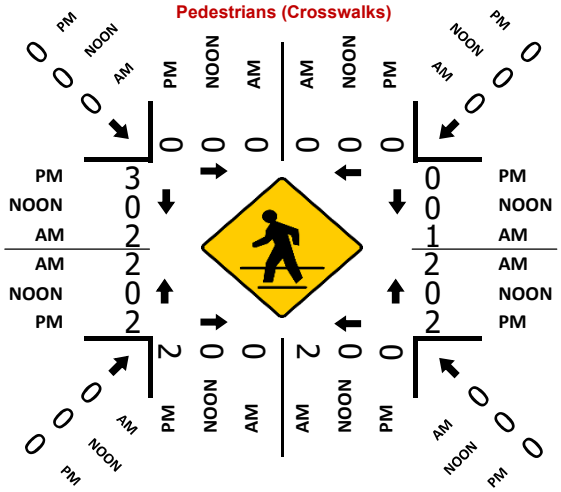
Bikes (NOON)



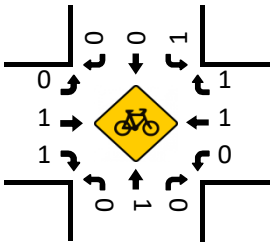
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Beaumont Ave & 8th St

Peak Hour Turning Movement Count

ID: 18-06059-002
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Beaumont Ave — SOUTHBOUND

AM	41	391	60	0	358	AM
NOON	0	0	0	0	0	NOON
PM	34	342	30	0	530	PM

8th St — EASTBOUND

AM	NOON	PM		
116	0	119	⇦	
0	0	0	↶	0
33	0	55	↱	0
62	0	32	→	1
22	0	26	↴	0
AM	NOON	PM		

CONTROL

4-Way Stop

TEV	1081 AM	0 NOON	1135 PM
PHF	0.93		0.86

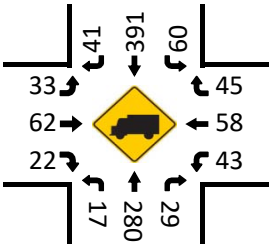
WESTBOUND — 8th St

PM	NOON	AM		
56	0	45	↰	0
55	0	58	←	1
36	0	43	↰	0
0	0	0	↰	0
82	0	151	⇨	
PM	NOON	AM		

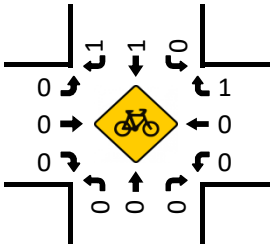
Beaumont Ave — NORTHBOUND

PM	404	0	30	419	20	PM
NOON	0	0	0	0	0	NOON
AM	456	0	17	280	29	AM

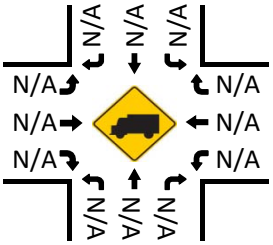
Total Vehicles (AM)



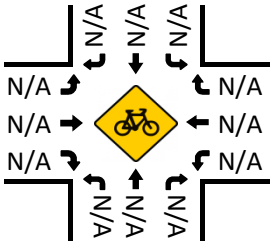
Bikes (AM)



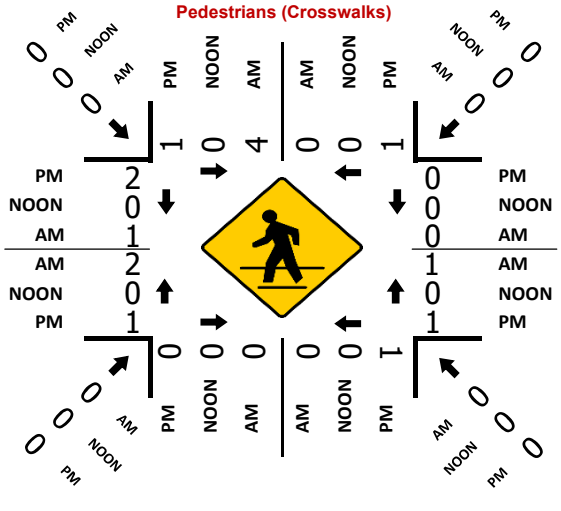
Total Vehicles (Noon)



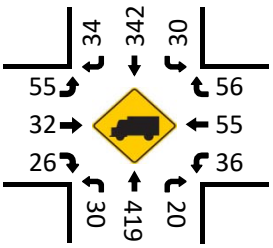
Bikes (NOON)



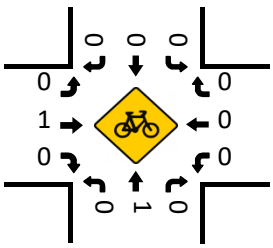
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

California Ave & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-003
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SOUTHBOUND — California Ave

	L	T	R	U	Total	
AM	8	98	54	0	113	AM
NOON	0	0	0	0	0	NOON
PM	9	60	22	0	110	PM

EASTBOUND — 6th St

	L	T	R	U	Total	
AM	212	0	395	1	608	AM
NOON	0	0	0	0	0	NOON
PM	95	0	167	1	263	PM

WESTBOUND — 6th St

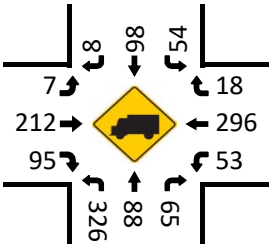
	L	T	R	U	Total	
AM	269	0	296	1	566	AM
NOON	0	0	0	0	0	NOON
PM	57	0	53	0	110	PM

NORTHBOUND — California Ave

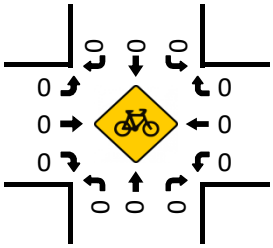
	L	T	R	U	Total	
AM	246	0	326	88	65	AM
NOON	0	0	0	0	0	NOON
PM	284	0	259	79	82	PM

CONTROL			
Signalized			
TEV	1320 AM	0 NOON	1430 PM
PHF	0.92		0.94

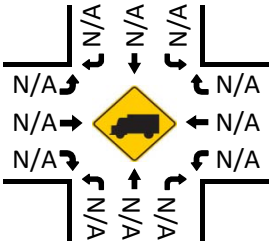
Total Vehicles (AM)



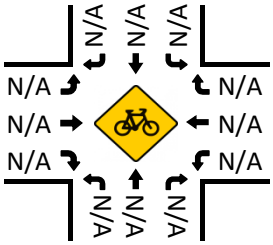
Bikes (AM)



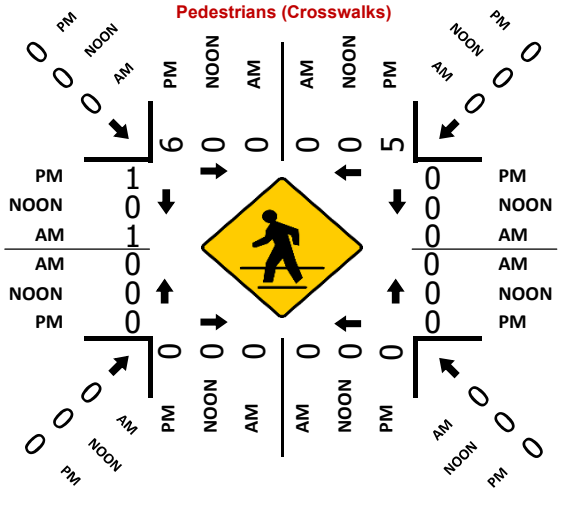
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
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0
6
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0
5
1
0
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0
0
0

Prepared by National Data & Surveying Services

Beaumont Ave & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-004
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Beaumont Ave — SOUTHBOUND

AM	72	275	117	0	340	AM
NOON	0	0	0	0	0	NOON
PM	45	263	141	0	460	PM

6th St — EASTBOUND

AM	NOON	PM		
344	0	364		
0	0	0	0	
64	0	94	1	
238	0	364	2	
47	0	40	0	
AM	NOON	PM		

CONTROL

Signalized

TEV	1518 AM	0 NOON	1862 PM
PHF	0.88		0.97

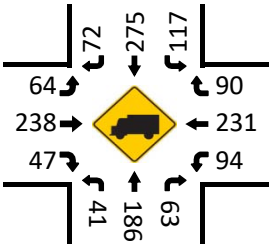
WESTBOUND — 6th St

PM	NOON	AM		
132	0	90	1	
269	0	231	1	
127	0	94	1	
0	0	0	0	
608	0	418		
PM	NOON	AM		

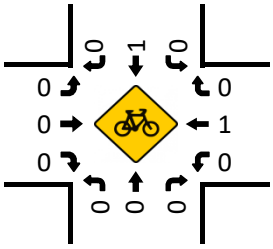
Beaumont Ave — NORTHBOUND

PM	430	0	50	234	103	PM
NOON	0	0	0	0	0	NOON
AM	416	0	41	186	63	AM

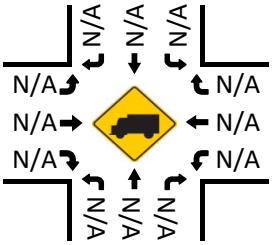
Total Vehicles (AM)



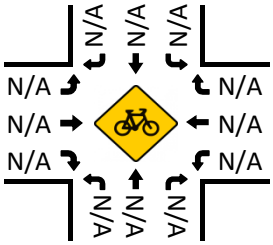
Bikes (AM)



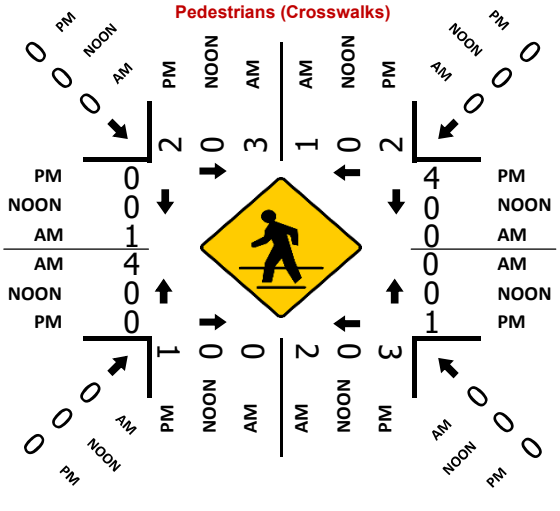
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
2
0
3
1
0
2
0
0
1
4
0
0
1
0
0
0
0
0

Prepared by National Data & Surveying Services

Beaumont Ave & 5th St

Peak Hour Turning Movement Count

ID: 18-06059-005
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

CONTROL: Signalized

TEV	541 AM	0 NOON	636 PM
PHF	0.95		0.97

Beaumont Ave — SOUTHBOUND

	Left	Thru	Right	U-Turn	
AM	4	270	2	0	195 AM
NOON	0	0	0	0	0 NOON
PM	4	248	5	0	282 PM

5th St — EASTBOUND

	AM	NOON	PM
Left	14	0	20
U-Turn	0	0	0
Thru	8	0	24
Right	10	0	8
Peds	12	0	21

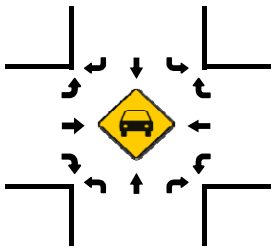
5th St — WESTBOUND

	PM	NOON	AM
Left	9	0	8
Thru	8	0	6
U-Turn	24	0	27
Right	0	0	0
Peds	41	0	23

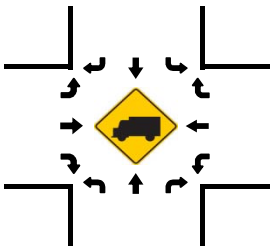
Beaumont Ave — NORTHBOUND

	Peds	Left	Thru	Right	U-Turn	
PM	293	0	8	249	28	PM
NOON	0	0	0	0	0	NOON
AM	309	0	4	179	11	AM

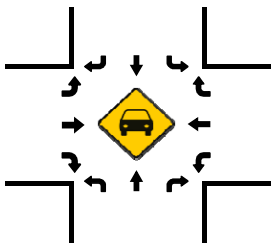
Total Vehicles (AM)



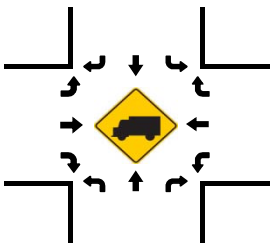
HT (AM)



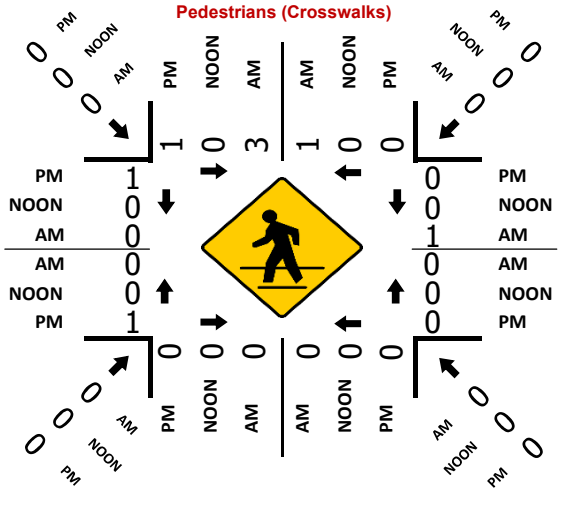
Total Vehicles (Noon)



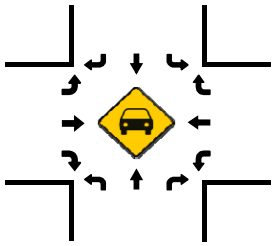
HT (NOON)



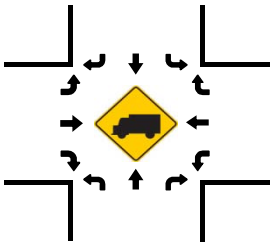
Pedestrians (Crosswalks)



Total Vehicles (PM)



HT (PM)



Prepared by National Data & Surveying Services

Orange Ave & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-006
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Orange Ave — SOUTHBOUND

AM	29	6	29	0	113	AM
NOON	0	0	0	0	0	NOON
PM	32	2	12	0	123	PM

6th St — EASTBOUND

AM	NOON	PM		
422	0	565	⇦	
0	0	0	↶	0
43	0	66	↱	1
356	0	541	→	2
6	0	9	↴	0
AM	NOON	PM		

6th St — WESTBOUND

PM	NOON	AM		
56	0	66	↰	1
522	0	389	←	2
13	0	3	↰	0
0	0	0	↶	0
563	0	391	⇨	
PM	NOON	AM		

	0	1	0	0

	0	0	1	0

CONTROL

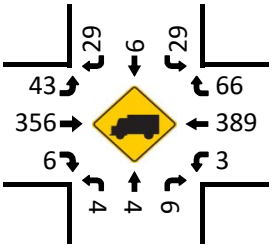
2-Way Stop (NB/SB)

TEV	941 AM	0 NOON	1275 PM
PHF	0.88		0.91

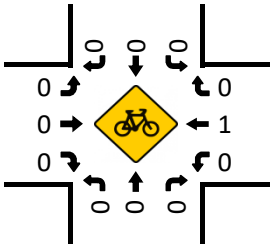
Orange Ave — NORTHBOUND

PM	24	0	11	1	10	PM
NOON	0	0	0	0	0	NOON
AM	15	0	4	4	6	AM

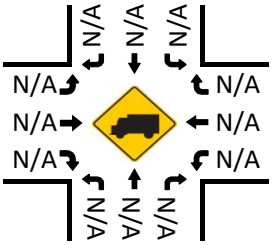
Total Vehicles (AM)



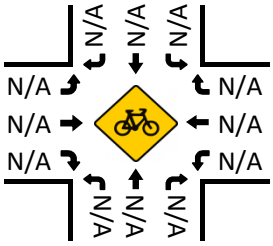
Bikes (AM)



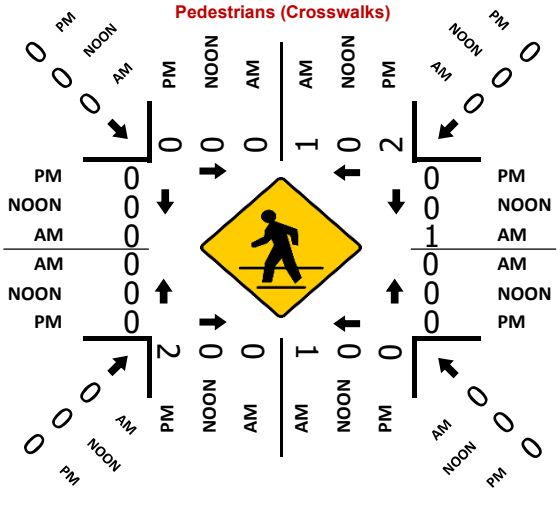
Total Vehicles (Noon)



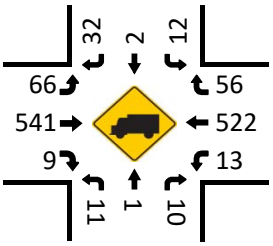
Bikes (NOON)



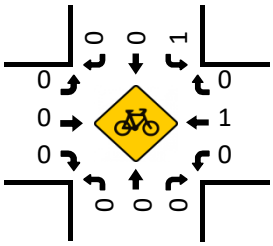
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Palm Ct & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-007
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Palm Ct — SOUTHBOUND

AM	51	10	77	0	85	AM
NOON	0	0	0	0	0	NOON
PM	45	4	74	2	98	PM

EASTBOUND — 6th St

AM	NOON	PM		
459	0	603	⇦	
0	0	0	↶	0
26	0	43	↱	1
356	0	535	→	2
4	0	3	↳	0
AM	NOON	PM		

WESTBOUND — 6th St

PM	NOON	AM		
46	0	50	↰	0
552	0	406	←	2
10	0	4	↰	1
0	0	0	↶	0
625	0	442	⇨	
PM	NOON	AM		

NORTHBOUND — Palm Ct

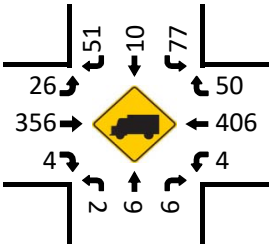
PM	17	0	6	7	16	PM
NOON	0	0	0	0	0	NOON
AM	18	0	2	9	9	AM

	1	0.5	0.5	0
	0	0.5	0.5	1

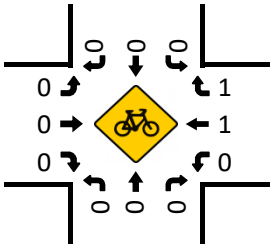
CONTROL: Signalized

TEV	1004 AM	0 NOON	1343 PM
PHF	0.90		0.99

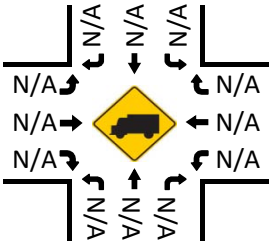
Total Vehicles (AM)



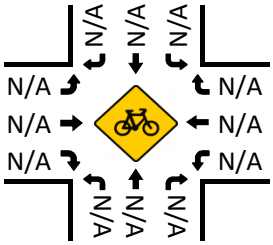
Bikes (AM)



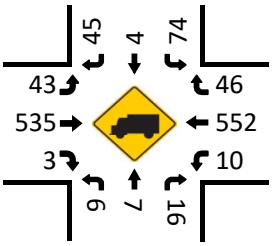
Total Vehicles (Noon)



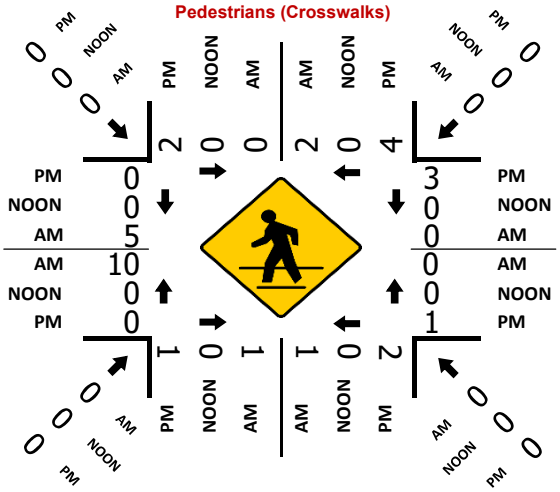
Bikes (NOON)



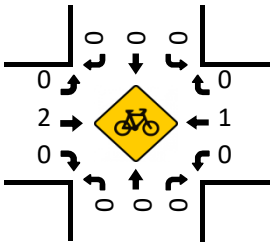
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Pennsylvania Ave & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-008
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

SOUTHBOUND — Pennsylvania Ave

	L	T	R	U	Total	
AM	52	289	46	0	243	AM
NOON	0	0	0	0	0	NOON
PM	40	201	37	0	436	PM

EASTBOUND — 6th St

	L	T	R	U	Total	
AM	481	0	643			AM
NOON	0	0	0	0	0	NOON
PM	24	0	59	1	84	PM
PM	264	0	356	2	622	PM
PM	173	0	212	0	385	PM

WESTBOUND — 6th St

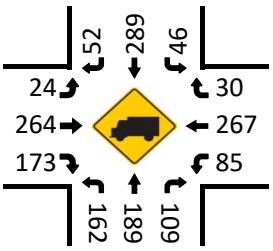
	L	T	R	U	Total	
PM	77	0	30	0	107	PM
NOON	384	0	267	2	653	NOON
AM	69	0	85	1	155	AM
	0	0	0	0		
PM	518	0	419			PM

NORTHBOUND — Pennsylvania Ave

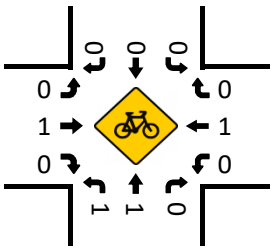
	L	T	R	U	Total	
PM	482	0	219	300	125	PM
NOON	0	0	0	0	0	NOON
AM	547	0	162	189	109	AM

CONTROL			
Signalized			
TEV	1690 AM	0 NOON	2079 PM
PHF	0.91		0.95

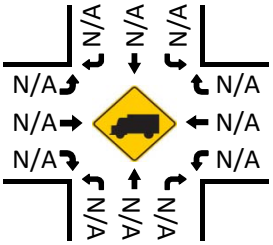
Total Vehicles (AM)



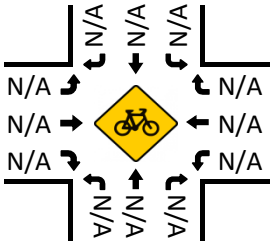
Bikes (AM)



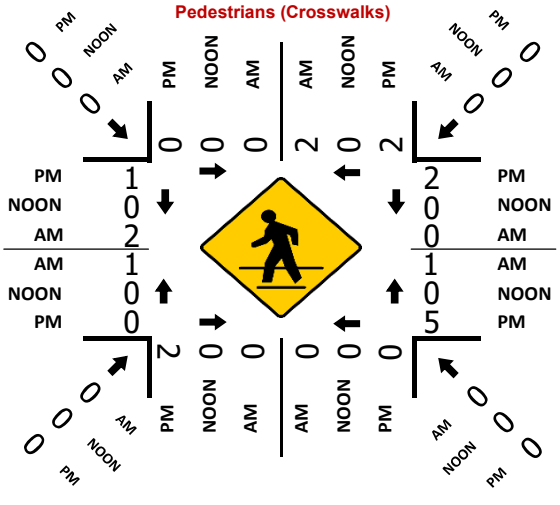
Total Vehicles (Noon)



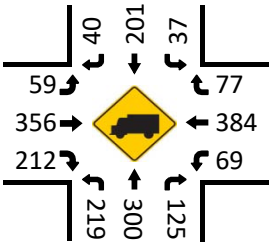
Bikes (NOON)



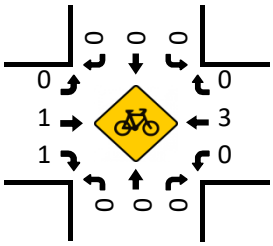
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Xenia Ave & 6th St

Peak Hour Turning Movement Count

ID: 18-06059-009
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Xenia Ave — SOUTHBOUND

AM	125	0	126	0	123	AM
NOON	0	0	0	0	0	NOON
PM	82	0	63	0	225	PM

EASTBOUND — 6th St

AM	NOON	PM	
372	0	509	
1	0	11	0
78	0	121	1
308	0	347	2
2	0	2	0

WESTBOUND — 6th St

PM	NOON	AM	
103	0	45	0
416	0	245	2
1	0	2	1
2	0	0	0
413	0	435	

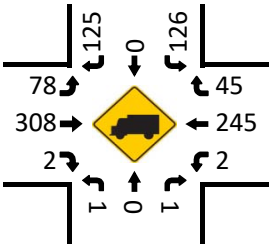
NORTHBOUND — Xenia Ave

PM	3	0	0	1	1	PM
NOON	0	0	0	0	0	NOON
AM	4	0	1	0	1	AM

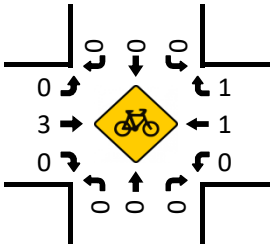
CONTROL: 4-Way Stop

TEV	934 AM	0 NOON	1150 PM
PHF	0.96		0.97

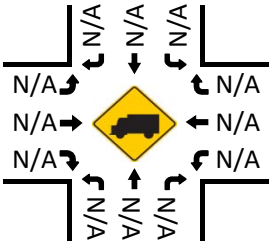
Total Vehicles (AM)



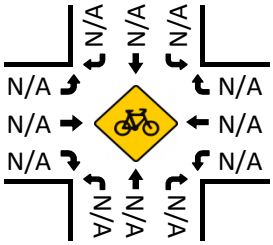
Bikes (AM)



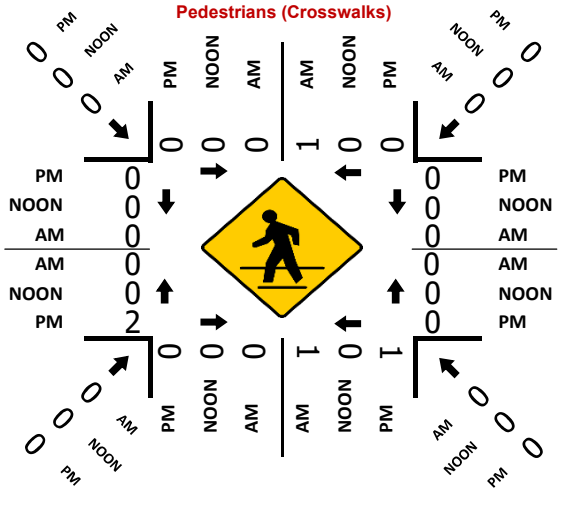
Total Vehicles (Noon)



Bikes (NOON)



Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
0
1
0
0
0
0

Prepared by National Data & Surveying Services

Highland Springs Ave & 6th St/Ramsey St

Peak Hour Turning Movement Count

ID: 18-06059-010
City: Beaumont

Day: Tuesday
Date: 05/08/2018

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Highland Springs Ave — SOUTHBOUND

AM	88	548	101	0	578	AM
NOON	0	0	0	0	0	NOON
PM	112	507	85	0	874	PM

6th St/Ramsey St — EASTBOUND

AM	NOON	PM		
355	0	601		
16	0	33	0	
89	0	168	1	
188	0	254	2	
192	0	198	1	
AM	NOON	PM		

6th St/Ramsey St — WESTBOUND

PM	NOON	AM	
81	0	66	0
285	0	156	2
246	0	130	1
15	0	15	0
518	0	441	
PM	NOON	AM	

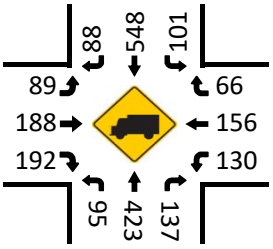
Highland Springs Ave — NORTHBOUND

PM	955	4	171	625	164	PM
NOON	0	0	0	0	0	NOON
AM	870	0	95	423	137	AM

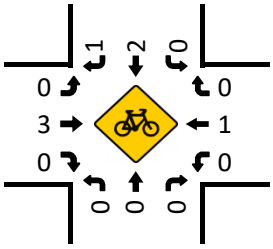
CONTROL: Signalized

TEV	2244	0	2948
	AM	NOON	PM
PHF	0.95		0.93

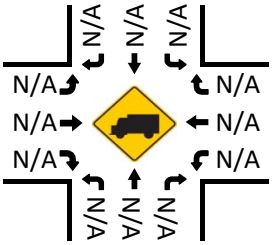
Total Vehicles (AM)



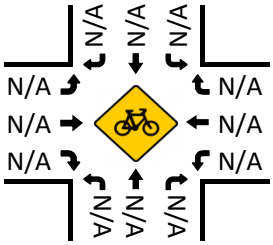
Bikes (AM)



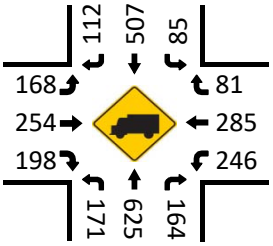
Total Vehicles (Noon)



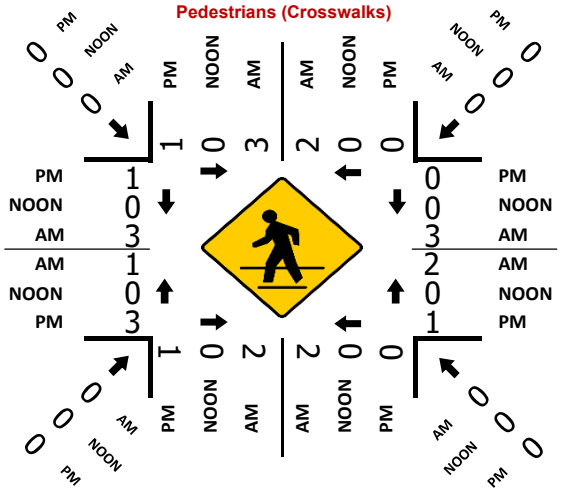
Bikes (NOON)



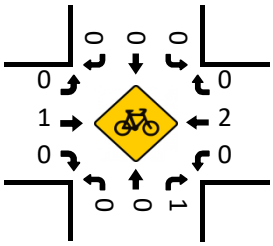
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by NDS/ATD

VOLUME

Oak Valley Pkwy Bet. Potrero Blvd & 2800' W/O Apron Ln

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,252	1,294	2,546

AM Period	NB		SB		EB		WB		TOTAL	
00:00					2		2		4	
00:15					3		0		3	
00:30					2		0		2	
00:45					1	8	3	5	4	13
01:00					3		2		5	
01:15					2		2		4	
01:30					4		0		4	
01:45					1	10	2	6	3	16
02:00					1		0		1	
02:15					2		0		2	
02:30					0		1		1	
02:45					0	3	0	1	0	4
03:00					2		3		5	
03:15					4		4		8	
03:30					2		6		8	
03:45					5	13	2	15	7	28
04:00					3		4		7	
04:15					2		6		8	
04:30					4		15		19	
04:45					3	12	6	31	9	43
05:00					4		4		8	
05:15					5		9		14	
05:30					8		16		24	
05:45					10	27	14	43	24	70
06:00					9		20		29	
06:15					13		16		29	
06:30					11		19		30	
06:45					19	52	22	77	41	129
07:00					12		26		38	
07:15					17		41		58	
07:30					37		26		63	
07:45					25	91	29	122	54	213
08:00					17		26		43	
08:15					19		11		30	
08:30					15		12		27	
08:45					13	64	18	67	31	131
09:00					17		14		31	
09:15					16		16		32	
09:30					11		15		26	
09:45					14	58	21	66	35	124
10:00					19		12		31	
10:15					15		15		30	
10:30					17		16		33	
10:45					19	70	18	61	37	131
11:00					21		18		39	
11:15					18		13		31	
11:30					25		15		40	
11:45					15	79	16	62	31	141
TOTALS					487		556		1043	
SPLIT %					46.7%		53.3%		41.0%	

PM Period	NB		SB		EB		WB		TOTAL	
12:00					19		16		35	
12:15					18		19		37	
12:30					11		18		29	
12:45					17	65	24	77	41	142
13:00					18		16		34	
13:15					19		11		30	
13:30					40		19		59	
13:45					12	89	18	64	30	153
14:00					13		26		39	
14:15					21		22		43	
14:30					22		22		44	
14:45					25	81	26	96	51	177
15:00					26		22		48	
15:15					22		25		47	
15:30					26		25		51	
15:45					32	106	12	84	44	190
16:00					18		19		37	
16:15					39		21		60	
16:30					26		11		37	
16:45					22	105	18	69	40	174
17:00					25		17		42	
17:15					25		17		42	
17:30					17		23		40	
17:45					22	89	22	79	44	168
18:00					17		26		43	
18:15					25		24		49	
18:30					23		26		49	
18:45					17	82	13	89	30	171
19:00					13		10		23	
19:15					16		16		32	
19:30					12		12		24	
19:45					10	51	14	52	24	103
20:00					7		12		19	
20:15					14		18		32	
20:30					10		15		25	
20:45					7	38	10	55	17	93
21:00					12		12		24	
21:15					8		14		22	
21:30					7		9		16	
21:45					3	30	8	43	11	73
22:00					9		9		18	
22:15					4		2		6	
22:30					5		6		11	
22:45					5	23	4	21	9	44
23:00					1		4		5	
23:15					1		2		3	
23:30					3		1		4	
23:45					1	6	2	9	3	15
TOTALS					765		738		1503	
SPLIT %					50.9%		49.1%		59.0%	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,252	1,294	2,546

AM Peak Hour			07:30	07:00	07:15
AM Pk Volume			98	122	218
Pk Hr Factor			0.662	0.744	0.865
7 - 9 Volume	0	0	155	189	344
7 - 9 Peak Hour			07:30	07:00	07:15
7 - 9 Pk Volume	0	0	98	122	218
Pk Hr Factor	0.000	0.000	0.662	0.744	0.865

PM Peak Hour			15:30	14:45	14:45
PM Pk Volume			115	98	197
Pk Hr Factor			0.737	0.942	0.966
4 - 6 Volume	0	0	194	148	342
4 - 6 Peak Hour			16:15	17:00	16:15
4 - 6 Pk Volume	0	0	112	79	179
Pk Hr Factor	0.000	0.000	0.718	0.859	0.746

Prepared by NDS/ATD

VOLUME

Oak Valley Pkwy Bet. Gateway Dr & I-10 SB Ramps

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,818	2,561	5,379

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		6		14		12:00			40		37		77	
00:15			6		3		9		12:15			41		46		87	
00:30			3		4		7		12:30			33		32		65	
00:45			4	21	3	16	7	37	12:45			49	163	44	159	93	322
01:00			3		5		8		13:00			40		54		94	
01:15			5		4		9		13:15			49		32		81	
01:30			6		2		8		13:30			68		39		107	
01:45			2	16	3	14	5	30	13:45			38	195	46	171	84	366
02:00			4		1		5		14:00			42		52		94	
02:15			3		1		4		14:15			47		44		91	
02:30			1		2		3		14:30			54		49		103	
02:45			2	10	0	4	2	14	14:45			61	204	43	188	104	392
03:00			3		3		6		15:00			55		40		95	
03:15			5		0		5		15:15			42		48		90	
03:30			9		8		17		15:30			52		37		89	
03:45			9	26	2	13	11	39	15:45			51	200	26	151	77	351
04:00			9		2		11		16:00			34		44		78	
04:15			9		6		15		16:15			49		35		84	
04:30			9		14		23		16:30			47		38		85	
04:45			8	35	9	31	17	66	16:45			50	180	35	152	85	332
05:00			14		12		26		17:00			41		50		91	
05:15			12		15		27		17:15			50		27		77	
05:30			23		16		39		17:30			42		40		82	
05:45			26	75	19	62	45	137	17:45			43	176	43	160	86	336
06:00			33		33		66		18:00			37		56		93	
06:15			45		24		69		18:15			41		55		96	
06:30			32		31		63		18:30			37		40		77	
06:45			48	158	37	125	85	283	18:45			30	145	33	184	63	329
07:00			56		42		98		19:00			34		38		72	
07:15			65		45		110		19:15			27		32		59	
07:30			63		45		108		19:30			20		26		46	
07:45			59	243	48	180	107	423	19:45			21	102	39	135	60	237
08:00			44		39		83		20:00			17		35		52	
08:15			46		28		74		20:15			21		32		53	
08:30			43		30		73		20:30			14		31		45	
08:45			39	172	31	128	70	300	20:45			16	68	24	122	40	190
09:00			47		36		83		21:00			16		21		37	
09:15			35		29		64		21:15			12		25		37	
09:30			39		33		72		21:30			13		15		28	
09:45			38	159	36	134	74	293	21:45			12	53	15	76	27	129
10:00			52		30		82		22:00			9		21		30	
10:15			35		26		61		22:15			10		12		22	
10:30			42		30		72		22:30			6		19		25	
10:45			41	170	32	118	73	288	22:45			10	35	18	70	28	105
11:00			49		30		79		23:00			4		12		16	
11:15			52		35		87		23:15			6		11		17	
11:30			51		37		88		23:30			5		4		9	
11:45			42	194	31	133	73	327	23:45			3	18	8	35	11	53
TOTALS				1279		958		2237	TOTALS				1539		1603		3142
SPLIT %				57.2%		42.8%		41.6%	SPLIT %				49.0%		51.0%		58.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,818	2,561	5,379

AM Peak Hour				07:00	07:00	07:00	PM Peak Hour				14:15	17:30	14:15
AM Pk Volume				243	180	423	PM Pk Volume				217	194	393
Pk Hr Factor				0.935	0.938	0.961	Pk Hr Factor				0.889	0.866	0.945
7 - 9 Volume	0	0		415	308	723	4 - 6 Volume	0	0		356	312	668
7 - 9 Peak Hour				07:00	07:00	07:00	4 - 6 Peak Hour				16:30	17:00	16:15
7 - 9 Pk Volume	0	0		243	180	423	4 - 6 Pk Volume	0	0		188	160	345
Pk Hr Factor	0.000	0.000		0.935	0.938	0.961	Pk Hr Factor	0.000	0.000		0.940	0.800	0.948

Prepared by NDS/ATD

VOLUME

Oak Valley Pkwy Bet. I-10 NB Ramps & Oak View Dr

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,829	8,771	16,600

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			22		7		29		**12:00**			107		110		217	
00:15			23		7		30		**12:15**			96		117		213	
00:30			14		9		23		**12:30**			113		100		213	
00:45			17	76	4	27	21	103	**12:45**			99	415	115	442	214	857
01:00			19		8		27		**13:00**			85		100		185	
01:15			14		5		19		**13:15**			102		104		206	
01:30			10		3		13		**13:30**			109		137		246	
01:45			10	53	6	22	16	75	**13:45**			100	396	120	461	220	857
02:00			11		3		14		**14:00**			125		124		249	
02:15			9		6		15		**14:15**			113		116		229	
02:30			8		6		14		**14:30**			129		112		241	
02:45			10	38	12	27	22	65	**14:45**			137	504	129	481	266	985
03:00			8		13		21		**15:00**			148		133		281	
03:15			12		21		33		**15:15**			133		180		313	
03:30			10		29		39		**15:30**			139		151		290	
03:45			10	40	31	94	41	134	**15:45**			153	573	113	577	266	1150
04:00			9		42		51		**16:00**			144		153		297	
04:15			10		51		61		**16:15**			141		125		266	
04:30			12		48		60		**16:30**			175		114		289	
04:45			14	45	57	198	71	243	**16:45**			179	639	104	496	283	1135
05:00			16		89		105		**17:00**			176		116		292	
05:15			26		103		129		**17:15**			178		113		291	
05:30			31		109		140		**17:30**			178		122		300	
05:45			54	127	119	420	173	547	**17:45**			165	697	111	462	276	1159
06:00			41		187		228		**18:00**			167		153		320	
06:15			39		202		241		**18:15**			169		122		291	
06:30			52		231		283		**18:30**			148		104		252	
06:45			60	192	228	848	288	1040	**18:45**			156	640	102	481	258	1121
07:00			99		221		320		**19:00**			129		102		231	
07:15			114		212		326		**19:15**			124		90		214	
07:30			141		200		341		**19:30**			111		78		189	
07:45			113	467	177	810	290	1277	**19:45**			134	498	111	381	245	879
08:00			85		153		238		**20:00**			120		111		231	
08:15			71		135		206		**20:15**			130		83		213	
08:30			83		157		240		**20:30**			102		60		162	
08:45			94	333	131	576	225	909	**20:45**			114	466	73	327	187	793
09:00			68		115		183		**21:00**			97		56		153	
09:15			67		110		177		**21:15**			88		57		145	
09:30			73		105		178		**21:30**			73		41		114	
09:45			100	308	91	421	191	729	**21:45**			73	331	33	187	106	518
10:00			64		93		157		**22:00**			58		24		82	
10:15			74		99		173		**22:15**			48		39		87	
10:30			78		111		189		**22:30**			39		29		68	
10:45			82	298	121	424	203	722	**22:45**			50	195	29	121	79	316
11:00			87		113		200		**23:00**			41		27		68	
11:15			106		102		208		**23:15**			22		10		32	
11:30			93		104		197		**23:30**			31		11		42	
11:45			95	381	112	431	207	812	**23:45**			23	117	9	57	32	174
TOTALS				2358		4298		**6656**	**TOTALS**				5471		4473		**9944**
SPLIT %				35.4%		64.6%		**40.1%**	**SPLIT %**				55.0%		45.0%		**59.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,829	8,771	16,600

AM Peak Hour				07:00	06:30	**07:00**		**PM Peak Hour**				16:45	15:15	**17:15**
AM Pk Volume				467	892	**1277**		**PM Pk Volume**				711	597	**1187**
Pk Hr Factor				0.828	0.965	**0.936**		**Pk Hr Factor**				0.993	0.829	**0.927**
7 - 9 Volume	0	0		800	1386	**2186**		**4 - 6 Volume**	0	0		1336	958	**2294**
7 - 9 Peak Hour				07:00	07:00	**07:00**		**4 - 6 Peak Hour**				16:45	16:00	**16:45**
7 - 9 Pk Volume	0	0		467	810	**1277**		**4 - 6 Pk Volume**	0	0		711	496	**1166**
Pk Hr Factor	0.000	0.000		0.828	0.916	**0.936**		**Pk Hr Factor**	0.000	0.000		0.993	0.810	**0.972**

Prepared by NDS/ATD

VOLUME

Beaumont Ave Bet. Cougar Way & Oak Valley Pkwy

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_004

DAILY TOTALS	NB	SB	EB	WB	Total
	7,785	8,726	0	0	16,511

AM Period	NB		SB		EB		WB		TOTAL	
00:00	9		5						14	
00:15	11		5						16	
00:30	10		10						20	
00:45	5	35	2	22					7	57
01:00	10		6						16	
01:15	2		0						2	
01:30	2		3						5	
01:45	7	21	1	10					8	31
02:00	6		1						7	
02:15	2		2						4	
02:30	2		4						6	
02:45	9	19	3	10					12	29
03:00	1		6						7	
03:15	3		9						12	
03:30	1		9						10	
03:45	2	7	15	39					17	46
04:00	1		15						16	
04:15	3		17						20	
04:30	4		17						21	
04:45	14	22	28	77					42	99
05:00	18		30						48	
05:15	21		42						63	
05:30	19		45						64	
05:45	22	80	48	165					70	245
06:00	24		63						87	
06:15	35		80						115	
06:30	87		92						179	
06:45	89	235	154	389					243	624
07:00	139		148						287	
07:15	216		189						405	
07:30	203		247						450	
07:45	194	752	240	824					434	1576
08:00	130		178						308	
08:15	94		121						215	
08:30	84		123						207	
08:45	89	397	117	539					206	936
09:00	85		122						207	
09:15	114		95						209	
09:30	85		89						174	
09:45	102	386	91	397					193	783
10:00	78		95						173	
10:15	86		103						189	
10:30	92		109						201	
10:45	90	346	136	443					226	789
11:00	80		139						219	
11:15	108		156						264	
11:30	99		133						232	
11:45	121	408	120	548					241	956
TOTALS		2708		3463						6171
SPLIT %		43.9%		56.1%						37.4%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	105		133						238	
12:15	84		200						284	
12:30	121		143						264	
12:45	114	424	105	581					219	1005
13:00	93		130						223	
13:15	85		137						222	
13:30	103		136						239	
13:45	84	365	142	545					226	910
14:00	112		180						292	
14:15	119		150						269	
14:30	198		111						309	
14:45	249	678	124	565					373	1243
15:00	228		261						489	
15:15	173		287						460	
15:30	153		245						398	
15:45	163	717	154	947					317	1664
16:00	148		169						317	
16:15	139		148						287	
16:30	153		123						276	
16:45	162	602	128	568					290	1170
17:00	143		148						291	
17:15	184		120						304	
17:30	177		106						283	
17:45	181	685	146	520					327	1205
18:00	162		157						319	
18:15	155		114						269	
18:30	136		121						257	
18:45	106	559	83	475					189	1034
19:00	126		82						208	
19:15	82		73						155	
19:30	98		87						185	
19:45	64	370	75	317					139	687
20:00	91		73						164	
20:15	72		73						145	
20:30	71		77						148	
20:45	68	302	105	328					173	630
21:00	68		168						236	
21:15	50		68						118	
21:30	57		39						96	
21:45	36	211	32	307					68	518
22:00	33		22						55	
22:15	29		14						43	
22:30	24		18						42	
22:45	22	108	16	70					38	178
23:00	11		10						21	
23:15	20		10						30	
23:30	11		9						20	
23:45	14	56	11	40					25	96
TOTALS		5077		5263						10340
SPLIT %		49.1%		50.9%						62.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,785	8,726	0	0	16,511

AM Peak Hour	07:00	07:15			07:15	PM Peak Hour	14:30	15:00			14:45
AM Pk Volume	752	854			1597	PM Pk Volume	848	947			1720
Pk Hr Factor	0.870	0.864			0.887	Pk Hr Factor	0.851	0.825			0.879
7 - 9 Volume	1149	1363	0	0	2512	4 - 6 Volume	1287	1088	0	0	2375
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	17:00	16:00			17:00
7 - 9 Pk Volume	752	854	0	0	1597	4 - 6 Pk Volume	685	568	0	0	1205
Pk Hr Factor	0.870	0.864	0.000	0.000	0.887	Pk Hr Factor	0.931	0.840	0.000	0.000	0.921

Prepared by NDS/ATD

VOLUME

Oak Valley Pkwy Bet. Cherry Ave & Star Light Ave

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,282	4,189	8,471

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		5		7		12:00			41		58		99	
00:15			3		4		7		12:15			52		49		101	
00:30			4		1		5		12:30			51		52		103	
00:45			3	12	3	13	6	25	12:45			58	202	48	207	106	409
01:00			5		3		8		13:00			44		59		103	
01:15			2		1		3		13:15			50		57		107	
01:30			3		1		4		13:30			60		45		105	
01:45			3	13	1	6	4	19	13:45			57	211	49	210	106	421
02:00			1		1		2		14:00			62		46		108	
02:15			3		2		5		14:15			73		64		137	
02:30			2		3		5		14:30			71		82		153	
02:45			4	10	8	14	12	24	14:45			100	306	80	272	180	578
03:00			6		2		8		15:00			102		87		189	
03:15			9		5		14		15:15			74		75		149	
03:30			8		9		17		15:30			132		122		254	
03:45			6	29	11	27	17	56	15:45			72	380	73	357	145	737
04:00			9		14		23		16:00			70		62		132	
04:15			11		9		20		16:15			82		77		159	
04:30			17		14		31		16:30			63		68		131	
04:45			11	48	17	54	28	102	16:45			72	287	74	281	146	568
05:00			23		20		43		17:00			68		63		131	
05:15			21		25		46		17:15			86		118		204	
05:30			21		28		49		17:30			77		97		174	
05:45			31	96	35	108	66	204	17:45			79	310	71	349	150	659
06:00			63		57		120		18:00			85		65		150	
06:15			74		63		137		18:15			66		58		124	
06:30			90		79		169		18:30			52		55		107	
06:45			94	321	94	293	188	614	18:45			47	250	53	231	100	481
07:00			103		106		209		19:00			48		45		93	
07:15			96		90		186		19:15			38		35		73	
07:30			106		84		190		19:30			45		37		82	
07:45			89	394	98	378	187	772	19:45			39	170	32	149	71	319
08:00			110		89		199		20:00			38		18		56	
08:15			75		68		143		20:15			25		39		64	
08:30			79		93		172		20:30			28		23		51	
08:45			114	378	78	328	192	706	20:45			30	121	30	110	60	231
09:00			70		85		155		21:00			30		29		59	
09:15			44		41		85		21:15			15		27		42	
09:30			47		48		95		21:30			15		22		37	
09:45			46	207	49	223	95	430	21:45			15	75	21	99	36	174
10:00			53		30		83		22:00			9		10		19	
10:15			56		60		116		22:15			16		12		28	
10:30			44		48		92		22:30			11		15		26	
10:45			42	195	66	204	108	399	22:45			7	43	9	46	16	89
11:00			52		56		108		23:00			7		5		12	
11:15			41		54		95		23:15			8		7		15	
11:30			44		40		84		23:30			9		7		16	
11:45			59	196	58	208	117	404	23:45			4	28	3	22	7	50
TOTALS				1899		1856		3755	TOTALS				2383		2333		4716
SPLIT %				50.6%		49.4%		44.3%	SPLIT %				50.5%		49.5%		55.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,282	4,189	8,471

AM Peak Hour				07:15	07:00	06:45		PM Peak Hour				14:45	14:45	14:45
AM Pk Volume				401	378	773		PM Pk Volume				408	364	772
Pk Hr Factor				0.911	0.892	0.925		Pk Hr Factor				0.773	0.746	0.760
7 - 9 Volume	0	0		772	706	1478		4 - 6 Volume	0	0		597	630	1227
7 - 9 Peak Hour				07:15	07:00	07:00		4 - 6 Peak Hour				17:00	16:45	17:00
7 - 9 Pk Volume	0	0		401	378	772		4 - 6 Pk Volume	0	0		310	352	659
Pk Hr Factor	0.000	0.000		0.911	0.892	0.923		Pk Hr Factor	0.000	0.000		0.901	0.746	0.808

Prepared by NDS/ATD

VOLUME

Beaumont Ave Bet. 12th St & 8th St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_006

DAILY TOTALS	NB	SB	EB	WB	Total
	5,955	6,126	0	0	12,081

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	9		10						19		**12:00**	94		88						182	
00:15	10		4						14		**12:15**	92		135						227	
00:30	12		2						14		**12:30**	111		96						207	
00:45	10	41	8	24					18	65	**12:45**	112	409	105	424					217	833
01:00	11		4						15		**13:00**	91		104						195	
01:15	6		2						8		**13:15**	73		88						161	
01:30	5		3						8		**13:30**	85		99						184	
01:45	4	26	4	13					8	39	**13:45**	83	332	84	375					167	707
02:00	5		2						7		**14:00**	82		139						221	
02:15	7		2						9		**14:15**	99		98						197	
02:30	6		2						8		**14:30**	149		95						244	
02:45	3	21	6	12					9	33	**14:45**	185	515	107	439					292	954
03:00	3		7						10		**15:00**	142		138						280	
03:15	4		6						10		**15:15**	97		145						242	
03:30	6		11						17		**15:30**	118		173						291	
03:45	4	17	10	34					14	51	**15:45**	118	475	117	573					235	1048
04:00	3		12						15		**16:00**	136		108						244	
04:15	6		14						20		**16:15**	123		105						228	
04:30	4		10						14		**16:30**	125		92						217	
04:45	9	22	24	60					33	82	**16:45**	115	499	107	412					222	911
05:00	14		24						38		**17:00**	109		114						223	
05:15	15		27						42		**17:15**	112		112						224	
05:30	22		31						53		**17:30**	113		81						194	
05:45	29	80	39	121					68	201	**17:45**	109	443	91	398					200	841
06:00	34		45						79		**18:00**	116		110						226	
06:15	35		35						70		**18:15**	87		99						186	
06:30	41		50						91		**18:30**	93		73						166	
06:45	57	167	87	217					144	384	**18:45**	84	380	70	352					154	732
07:00	52		72						124		**19:00**	68		75						143	
07:15	77		108						185		**19:15**	81		53						134	
07:30	93		137						230		**19:30**	65		51						116	
07:45	106	328	140	457					246	785	**19:45**	59	273	85	264					144	537
08:00	97		120						217		**20:00**	72		69						141	
08:15	67		117						184		**20:15**	48		40						88	
08:30	72		89						161		**20:30**	64		61						125	
08:45	74	310	109	435					183	745	**20:45**	57	241	40	210					97	451
09:00	87		96						183		**21:00**	44		40						84	
09:15	94		85						179		**21:15**	46		29						75	
09:30	92		86						178		**21:30**	39		20						59	
09:45	70	343	101	368					171	711	**21:45**	38	167	24	113					62	280
10:00	62		79						141		**22:00**	21		17						38	
10:15	71		92						163		**22:15**	19		18						37	
10:30	93		84						177		**22:30**	22		15						37	
10:45	106	332	74	329					180	661	**22:45**	26	88	19	69					45	157
11:00	90		107						197		**23:00**	19		19						38	
11:15	99		87						186		**23:15**	16		15						31	
11:30	93		81						174		**23:30**	17		12						29	
11:45	99	381	98	373					197	754	**23:45**	13	65	8	54					21	119
TOTALS		2068		2443						**4511**	**TOTALS**		3887		3683						**7570**
SPLIT %		45.8%		54.2%						**37.3%**	**SPLIT %**		51.3%		48.7%						**62.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	5,955	6,126	0	0	12,081

AM Peak Hour	11:45	07:30			**07:15**	**PM Peak Hour**	14:15	15:00			**14:45**
AM Pk Volume	396	514			**878**	**PM Pk Volume**	575	573			**1105**
Pk Hr Factor	0.892	0.918			**0.892**	**Pk Hr Factor**	0.777	0.828			**0.946**
7 - 9 Volume	638	892	0	0	**1530**	**4 - 6 Volume**	942	810	0	0	**1752**
7 - 9 Peak Hour	07:15	07:30			**07:15**	**4 - 6 Peak Hour**	16:00	16:30			**16:00**
7 - 9 Pk Volume	373	514	0	0	**878**	**4 - 6 Pk Volume**	499	425	0	0	**911**
Pk Hr Factor	0.880	0.918	0.000	0.000	**0.892**	**Pk Hr Factor**	0.917	0.932	0.000	0.000	**0.933**

Prepared by NDS/ATD

VOLUME

Highland Springs Ave Bet. Oak Valley Pkwy & Wilson St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_007

DAILY TOTALS	NB	SB	EB	WB	Total
	7,483	7,758	0	0	15,241

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	16		8						24		**12:00**	101		115						216	
00:15	10		4						14		**12:15**	112		128						240	
00:30	12		4						16		**12:30**	103		127						230	
00:45	8	46	7	23					15	69	**12:45**	102	418	113	483					215	901
01:00	13		8						21		**13:00**	99		104						203	
01:15	14		7						21		**13:15**	93		101						194	
01:30	5		3						8		**13:30**	89		124						213	
01:45	6	38	6	24					12	62	**13:45**	116	397	106	435					222	832
02:00	8		10						18		**14:00**	114		128						242	
02:15	7		11						18		**14:15**	126		105						231	
02:30	5		12						17		**14:30**	172		137						309	
02:45	4	24	7	40					11	64	**14:45**	198	610	116	486					314	1096
03:00	5		4						9		**15:00**	175		183						358	
03:15	7		9						16		**15:15**	159		261						420	
03:30	3		12						15		**15:30**	140		194						334	
03:45	2	17	14	39					16	56	**15:45**	159	633	147	785					306	1418
04:00	5		11						16		**16:00**	150		120						270	
04:15	7		17						24		**16:15**	149		112						261	
04:30	4		20						24		**16:30**	140		102						242	
04:45	9	25	29	77					38	102	**16:45**	169	608	106	440					275	1048
05:00	20		32						52		**17:00**	160		114						274	
05:15	25		44						69		**17:15**	171		104						275	
05:30	33		47						80		**17:30**	143		112						255	
05:45	52	130	73	196					125	326	**17:45**	151	625	113	443					264	1068
06:00	41		67						108		**18:00**	123		109						232	
06:15	69		68						137		**18:15**	156		93						249	
06:30	65		89						154		**18:30**	142		118						260	
06:45	95	270	126	350					221	620	**18:45**	124	545	97	417					221	962
07:00	111		129						240		**19:00**	123		99						222	
07:15	131		133						264		**19:15**	110		85						195	
07:30	128		158						286		**19:30**	110		72						182	
07:45	100	470	224	644					324	1114	**19:45**	86	429	83	339					169	768
08:00	101		204						305		**20:00**	100		91						191	
08:15	104		180						284		**20:15**	76		74						150	
08:30	76		118						194		**20:30**	72		53						125	
08:45	86	367	121	623					207	990	**20:45**	77	325	37	255					114	580
09:00	79		123						202		**21:00**	75		41						116	
09:15	59		125						184		**21:15**	70		39						109	
09:30	64		107						171		**21:30**	48		19						67	
09:45	90	292	136	491					226	783	**21:45**	42	235	21	120					63	355
10:00	91		102						193		**22:00**	46		36						82	
10:15	83		105						188		**22:15**	44		19						63	
10:30	93		116						209		**22:30**	45		17						62	
10:45	85	352	103	426					188	778	**22:45**	46	181	21	93					67	274
11:00	86		114						200		**23:00**	30		19						49	
11:15	87		113						200		**23:15**	19		15						34	
11:30	100		115						215		**23:30**	20		11						31	
11:45	85	358	128	470					213	828	**23:45**	19	88	14	59					33	147
TOTALS		2389		3403						**5792**	**TOTALS**		5094		4355						**9449**
SPLIT %		41.2%		58.8%						**38.0%**	**SPLIT %**		53.9%		46.1%						**62.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	7,483	7,758	0	0	15,241

AM Peak Hour	07:00	07:30			**07:30**	**PM Peak Hour**	14:30	15:00			**14:45**
AM Pk Volume	470	766			**1199**	**PM Pk Volume**	704	785			**1426**
Pk Hr Factor	0.897	0.855			**0.925**	**Pk Hr Factor**	0.889	0.752			**0.849**
7 - 9 Volume	837	1267	0	0	**2104**	**4 - 6 Volume**	1233	883	0	0	**2116**
7 - 9 Peak Hour	07:00	07:30			**07:30**	**4 - 6 Peak Hour**	16:45	17:00			**16:45**
7 - 9 Pk Volume	470	766	0	0	**1199**	**4 - 6 Pk Volume**	643	443	0	0	**1079**
Pk Hr Factor	0.897	0.855	0.000	0.000	**0.925**	**Pk Hr Factor**	0.940	0.971	0.000	0.000	**0.981**

Prepared by NDS/ATD

VOLUME

Xenia Ave Bet. Carnation Ln & 6th St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_008

DAILY TOTALS	NB	SB	EB	WB	Total
	1,175	1,312	0	0	2,487

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	2		1				3		**12:00**	22		27				49	
00:15	3		0				3		**12:15**	18		12				30	
00:30	2		0				2		**12:30**	16		20				36	
00:45	1	8	3	4			4	12	**12:45**	10	66	21	80			31	146
01:00	2		0				2		**13:00**	16		14				30	
01:15	0		2				2		**13:15**	18		10				28	
01:30	1		1				2		**13:30**	36		19				55	
01:45	1	4	1	4			2	8	**13:45**	20	90	18	61			38	151
02:00	1		0				1		**14:00**	25		27				52	
02:15	2		2				4		**14:15**	20		22				42	
02:30	0		1				1		**14:30**	21		22				43	
02:45	1	4	0	3			1	7	**14:45**	24	90	27	98			51	188
03:00	0		1				1		**15:00**	26		22				48	
03:15	1		0				1		**15:15**	22		25				47	
03:30	0		0				0		**15:30**	24		24				48	
03:45	1	2	1	2			2	4	**15:45**	32	104	12	83			44	187
04:00	0		0				0		**16:00**	17		19				36	
04:15	3		2				5		**16:15**	39		22				61	
04:30	3		14				17		**16:30**	26		11				37	
04:45	2	8	11	27			13	35	**16:45**	20	102	19	71			39	173
05:00	4		12				16		**17:00**	25		16				41	
05:15	5		10				15		**17:15**	24		17				41	
05:30	6		14				20		**17:30**	16		23				39	
05:45	5	20	15	51			20	71	**17:45**	22	87	22	78			44	165
06:00	7		21				28		**18:00**	17		26				43	
06:15	7		13				20		**18:15**	24		24				48	
06:30	17		17				34		**18:30**	22		26				48	
06:45	12	43	23	74			35	117	**18:45**	15	78	13	89			28	167
07:00	12		27				39		**19:00**	12		10				22	
07:15	15		31				46		**19:15**	15		16				31	
07:30	20		23				43		**19:30**	12		12				24	
07:45	20	67	25	106			45	173	**19:45**	10	49	14	52			24	101
08:00	13		19				32		**20:00**	11		12				23	
08:15	19		25				44		**20:15**	13		18				31	
08:30	16		18				34		**20:30**	12		15				27	
08:45	17	65	20	82			37	147	**20:45**	15	51	10	55			25	106
09:00	14		20				34		**21:00**	11		12				23	
09:15	15		22				37		**21:15**	6		14				20	
09:30	13		19				32		**21:30**	6		10				16	
09:45	15	57	17	78			32	135	**21:45**	4	27	8	44			12	71
10:00	14		17				31		**22:00**	6		9				15	
10:15	13		15				28		**22:15**	3		2				5	
10:30	12		14				26		**22:30**	5		6				11	
10:45	16	55	22	68			38	123	**22:45**	5	19	4	21			9	40
11:00	13		18				31		**23:00**	1		4				5	
11:15	23		21				44		**23:15**	1		2				3	
11:30	20		17				37		**23:30**	3		1				4	
11:45	17	73	16	72			33	145	**23:45**	1	6	2	9			3	15
TOTALS		406		571				**977**	**TOTALS**		769		741				**1510**
SPLIT %		41.6%		58.4%				**39.3%**	**SPLIT %**		50.9%		49.1%				**60.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,175	1,312	0	0	2,487

AM Peak Hour	11:15	07:00			**07:00**	**PM Peak Hour**	15:45	14:00			**14:45**
AM Pk Volume	82	106			**173**	**PM Pk Volume**	114	98			**194**
Pk Hr Factor	0.891	0.855			**0.940**	**Pk Hr Factor**	0.731	0.907			**0.951**
7 - 9 Volume	132	188	0	0	**320**	**4 - 6 Volume**	189	149	0	0	**338**
7 - 9 Peak Hour	07:30	07:00			**07:00**	**4 - 6 Peak Hour**	16:15	17:00			**16:15**
7 - 9 Pk Volume	72	106	0	0	**173**	**4 - 6 Pk Volume**	110	78	0	0	**178**
Pk Hr Factor	0.900	0.855	0.000	0.000	**0.940**	**Pk Hr Factor**	0.705	0.848	0.000	0.000	**0.730**

Prepared by NDS/ATD

VOLUME

6th St Bet. Veile Ave & California Ave

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,682	10,468	17,150

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			15		9		24		**12:00**			105		127		232	
00:15			11		6		17		**12:15**			108		135		243	
00:30			15		8		23		**12:30**			74		128		202	
00:45			12	53	12	35	24	88	**12:45**			70	357	122	512	192	869
01:00			13		8		21		**13:00**			98		145		243	
01:15			11		11		22		**13:15**			84		189		273	
01:30			13		5		18		**13:30**			105		171		276	
01:45			10	47	5	29	15	76	**13:45**			99	386	158	663	257	1049
02:00			8		11		19		**14:00**			119		178		297	
02:15			9		0		9		**14:15**			138		166		304	
02:30			8		4		12		**14:30**			136		200		336	
02:45			12	37	8	23	20	60	**14:45**			103	496	136	680	239	1176
03:00			15		18		33		**15:00**			132		178		310	
03:15			8		20		28		**15:15**			126		191		317	
03:30			9		25		34		**15:30**			154		197		351	
03:45			12	44	23	86	35	130	**15:45**			144	556	186	752	330	1308
04:00			11		26		37		**16:00**			164		186		350	
04:15			13		31		44		**16:15**			155		206		361	
04:30			15		40		55		**16:30**			162		184		346	
04:45			15	54	37	134	52	188	**16:45**			151	632	155	731	306	1363
05:00			17		51		68		**17:00**			162		212		374	
05:15			23		91		114		**17:15**			184		190		374	
05:30			30		103		133		**17:30**			162		206		368	
05:45			42	112	163	408	205	520	**17:45**			153	661	182	790	335	1451
06:00			39		157		196		**18:00**			143		153		296	
06:15			39		228		267		**18:15**			126		129		255	
06:30			49		260		309		**18:30**			130		116		246	
06:45			62	189	230	875	292	1064	**18:45**			95	494	92	490	187	984
07:00			63		265		328		**19:00**			79		96		175	
07:15			82		240		322		**19:15**			82		99		181	
07:30			89		213		302		**19:30**			65		91		156	
07:45			121	355	206	924	327	1279	**19:45**			64	290	85	371	149	661
08:00			88		190		278		**20:00**			55		77		132	
08:15			67		179		246		**20:15**			57		50		107	
08:30			64		185		249		**20:30**			54		48		102	
08:45			96	315	148	702	244	1017	**20:45**			55	221	44	219	99	440
09:00			88		178		266		**21:00**			59		45		104	
09:15			59		131		190		**21:15**			64		59		123	
09:30			69		172		241		**21:30**			43		40		83	
09:45			63	279	149	630	212	909	**21:45**			34	200	43	187	77	387
10:00			73		134		207		**22:00**			39		33		72	
10:15			87		123		210		**22:15**			34		25		59	
10:30			77		151		228		**22:30**			32		22		54	
10:45			81	318	129	537	210	855	**22:45**			22	127	24	104	46	231
11:00			82		120		202		**23:00**			28		15		43	
11:15			92		145		237		**23:15**			24		22		46	
11:30			92		154		246		**23:30**			17		16		33	
11:45			101	367	103	522	204	889	**23:45**			23	92	11	64	34	156
TOTALS				2170		4905		**7075**	**TOTALS**				4512		5563		**10075**
SPLIT %				30.7%		69.3%		**41.3%**	**SPLIT %**				44.8%		55.2%		**58.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,682	10,468	17,150

AM Peak Hour				11:30	06:30	**07:00**	**PM Peak Hour**				17:00	17:00	**17:00**
AM Pk Volume				406	995	**1279**	**PM Pk Volume**				661	790	**1451**
Pk Hr Factor				0.940	0.939	**0.975**	**Pk Hr Factor**				0.898	0.932	**0.970**
7 - 9 Volume	0	0		670	1626	**2296**	**4 - 6 Volume**	0	0		1293	1521	**2814**
7 - 9 Peak Hour				07:15	07:00	**07:00**	**4 - 6 Peak Hour**				17:00	17:00	**17:00**
7 - 9 Pk Volume	0	0		380	924	**1279**	**4 - 6 Pk Volume**	0	0		661	790	**1451**
Pk Hr Factor	0.000	0.000		0.785	0.872	**0.975**	**Pk Hr Factor**	0.000	0.000		0.898	0.932	**0.970**

Prepared by NDS/ATD

VOLUME

Beaumont Ave Bet. 6th St & 5th St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_010

DAILY TOTALS	NB	SB	EB	WB	Total
	5,975	5,118	0	0	11,093

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	10		6						16		**12:00**	106		97						203	
00:15	13		17						30		**12:15**	127		76						203	
00:30	10		12						22		**12:30**	117		94						211	
00:45	15	48	10	45					25	93	**12:45**	91	441	79	346					170	787
01:00	4		9						13		**13:00**	95		67						162	
01:15	9		6						15		**13:15**	111		78						189	
01:30	10		4						14		**13:30**	96		73						169	
01:45	8	31	8	27					16	58	**13:45**	85	387	76	294					161	681
02:00	7		6						13		**14:00**	130		59						189	
02:15	4		6						10		**14:15**	92		96						188	
02:30	6		3						9		**14:30**	78		89						167	
02:45	8	25	6	21					14	46	**14:45**	104	404	92	336					196	740
03:00	8		3						11		**15:00**	121		77						198	
03:15	10		3						13		**15:15**	120		92						212	
03:30	10		8						18		**15:30**	124		89						213	
03:45	14	42	11	25					25	67	**15:45**	110	475	86	344					196	819
04:00	14		9						23		**16:00**	96		104						200	
04:15	18		9						27		**16:15**	104		89						193	
04:30	12		13						25		**16:30**	79		90						169	
04:45	18	62	18	49					36	111	**16:45**	108	387	88	371					196	758
05:00	30		19						49		**17:00**	88		118						206	
05:15	32		13						45		**17:15**	114		106						220	
05:30	31		31						62		**17:30**	92		115						207	
05:45	54	147	41	104					95	251	**17:45**	100	394	90	429					190	823
06:00	47		39						86		**18:00**	102		75						177	
06:15	42		29						71		**18:15**	100		87						187	
06:30	67		47						114		**18:30**	91		67						158	
06:45	88	244	47	162					135	406	**18:45**	64	357	56	285					120	642
07:00	60		63						123		**19:00**	66		56						122	
07:15	64		76						140		**19:15**	61		43						104	
07:30	75		118						193		**19:30**	58		45						103	
07:45	77	276	91	348					168	624	**19:45**	81	266	42	186					123	452
08:00	65		98						163		**20:00**	86		52						138	
08:15	74		74						148		**20:15**	44		63						107	
08:30	66		89						155		**20:30**	65		39						104	
08:45	69	274	78	339					147	613	**20:45**	51	246	48	202					99	448
09:00	91		66						157		**21:00**	40		45						85	
09:15	103		91						194		**21:15**	41		38						79	
09:30	94		72						166		**21:30**	32		48						80	
09:45	83	371	62	291					145	662	**21:45**	39	152	36	167					75	319
10:00	82		58						140		**22:00**	34		24						58	
10:15	75		58						133		**22:15**	29		25						54	
10:30	94		60						154		**22:30**	22		34						56	
10:45	80	331	77	253					157	584	**22:45**	26	111	32	115					58	226
11:00	101		54						155		**23:00**	26		28						54	
11:15	103		73						176		**23:15**	20		22						42	
11:30	103		77						180		**23:30**	12		25						37	
11:45	127	434	79	283					206	717	**23:45**	12	70	21	96					33	166
TOTALS		2285		1947						**4232**	**TOTALS**		3690		3171						**6861**
SPLIT %		54.0%		46.0%						**38.2%**	**SPLIT %**		53.8%		46.2%						**61.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	5,975	5,118	0	0	11,093

AM Peak Hour	11:45	07:15			**11:45**	**PM Peak Hour**	15:00	17:00			**16:45**
AM Pk Volume	477	383			**823**	**PM Pk Volume**	475	429			**829**
Pk Hr Factor	0.939	0.811			**0.975**	**Pk Hr Factor**	0.958	0.909			**0.942**
7 - 9 Volume	550	687	0	0	**1237**	**4 - 6 Volume**	781	800	0	0	**1581**
7 - 9 Peak Hour	07:30	07:15			**07:30**	**4 - 6 Peak Hour**	16:45	17:00			**16:45**
7 - 9 Pk Volume	291	383	0	0	**672**	**4 - 6 Pk Volume**	402	429	0	0	**829**
Pk Hr Factor	0.945	0.811	0.000	0.000	**0.870**	**Pk Hr Factor**	0.882	0.909	0.000	0.000	**0.942**

Prepared by NDS/ATD

VOLUME

6th St Bet. Beaumont Ave & Palm Ct

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_011

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,680	7,379	14,059

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		13		24		12:00			131		111		242	
00:15			15		5		20		12:15			124		113		237	
00:30			12		14		26		12:30			108		121		229	
00:45			11	49	10	42	21	91	12:45			116	479	130	475	246	954
01:00			10		5		15		13:00			115		105		220	
01:15			8		8		16		13:15			103		138		241	
01:30			12		6		18		13:30			122		121		243	
01:45			6	36	7	26	13	62	13:45			109	449	145	509	254	958
02:00			8		5		13		14:00			153		127		280	
02:15			8		4		12		14:15			152		129		281	
02:30			5		8		13		14:30			173		160		333	
02:45			8	29	9	26	17	55	14:45			141	619	184	600	325	1219
03:00			9		9		18		15:00			134		145		279	
03:15			5		10		15		15:15			146		134		280	
03:30			4		9		13		15:30			183		134		317	
03:45			6	24	12	40	18	64	15:45			145	608	164	577	309	1185
04:00			6		14		20		16:00			151		140		291	
04:15			8		27		35		16:15			147		138		285	
04:30			8		27		35		16:30			161		132		293	
04:45			13	35	24	92	37	127	16:45			159	618	151	561	310	1179
05:00			16		37		53		17:00			143		148		291	
05:15			14		28		42		17:15			148		127		275	
05:30			24		35		59		17:30			151		120		271	
05:45			43	97	51	151	94	248	17:45			118	560	122	517	240	1077
06:00			32		45		77		18:00			128		77		205	
06:15			33		53		86		18:15			141		92		233	
06:30			31		73		104		18:30			116		97		213	
06:45			46	142	92	263	138	405	18:45			98	483	82	348	180	831
07:00			69		124		193		19:00			33		66		99	
07:15			63		97		160		19:15			41		78		119	
07:30			92		116		208		19:30			38		67		105	
07:45			116	340	122	459	238	799	19:45			47	159	83	294	130	453
08:00			104		100		204		20:00			39		82		121	
08:15			91		93		184		20:15			32		62		94	
08:30			81		125		206		20:30			28		59		87	
08:45			94	370	91	409	185	779	20:45			22	121	54	257	76	378
09:00			84		102		186		21:00			24		46		70	
09:15			85		100		185		21:15			15		45		60	
09:30			100		125		225		21:30			18		45		63	
09:45			117	386	113	440	230	826	21:45			20	77	31	167	51	244
10:00			93		116		209		22:00			15		38		53	
10:15			113		120		233		22:15			17		23		40	
10:30			97		111		208		22:30			21		20		41	
10:45			89	392	112	459	201	851	22:45			24	77	22	103	46	180
11:00			105		141		246		23:00			22		14		36	
11:15			87		111		198		23:15			15		21		36	
11:30			146		122		268		23:30			14		22		36	
11:45			125	463	122	496	247	959	23:45			16	67	11	68	27	135
TOTALS				2363		2903		5266	TOTALS				4317		4476		8793
SPLIT %				44.9%		55.1%		37.5%	SPLIT %				49.1%		50.9%		62.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,680	7,379	14,059

AM Peak Hour			11:30	11:00	11:30	PM Peak Hour			15:30	14:30	14:00
AM Pk Volume			526	496	994	PM Pk Volume			626	623	1219
Pk Hr Factor			0.901	0.879	0.927	Pk Hr Factor			0.855	0.846	0.915
7 - 9 Volume	0	0	710	868	1578	4 - 6 Volume	0	0	1178	1078	2256
7 - 9 Peak Hour			07:30	07:00	07:30	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	403	459	834	4 - 6 Pk Volume	0	0	618	569	1179
Pk Hr Factor	0.000	0.000	0.869	0.925	0.876	Pk Hr Factor	0.000	0.000	0.960	0.942	0.951

Prepared by NDS/ATD

VOLUME

Pennsylvania Ave Bet. 6th St & I-10 WB off-ramp

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_012

DAILY TOTALS	NB	SB	EB	WB	Total
	7,211	6,798	0	0	14,009

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	13		9				22		**12:00**	106		112				218	
00:15	11		5				16		**12:15**	93		126				219	
00:30	10		5				15		**12:30**	132		104				236	
00:45	10	44	5	24			15	68	**12:45**	113	444	112	454			225	898
01:00	6		4				10		**13:00**	125		103				228	
01:15	6		3				9		**13:15**	101		101				202	
01:30	5		5				10		**13:30**	114		99				213	
01:45	3	20	1	13			4	33	**13:45**	115	455	104	407			219	862
02:00	5		0				5		**14:00**	111		123				234	
02:15	3		8				11		**14:15**	157		104				261	
02:30	2		4				6		**14:30**	156		128				284	
02:45	6	16	3	15			9	31	**14:45**	148	572	145	500			293	1072
03:00	5		2				7		**15:00**	144		119				263	
03:15	4		5				9		**15:15**	122		176				298	
03:30	4		3				7		**15:30**	137		153				290	
03:45	4	17	6	16			10	33	**15:45**	126	529	114	562			240	1091
04:00	6		5				11		**16:00**	147		131				278	
04:15	7		12				19		**16:15**	128		102				230	
04:30	6		18				24		**16:30**	143		129				272	
04:45	10	29	32	67			42	96	**16:45**	179	597	119	481			298	1078
05:00	15		27				42		**17:00**	177		125				302	
05:15	12		38				50		**17:15**	143		108				251	
05:30	19		44				63		**17:30**	169		106				275	
05:45	25	71	73	182			98	253	**17:45**	154	643	99	438			253	1081
06:00	25		62				87		**18:00**	112		105				217	
06:15	28		73				101		**18:15**	115		116				231	
06:30	49		63				112		**18:30**	114		99				213	
06:45	64	166	102	300			166	466	**18:45**	118	459	105	425			223	884
07:00	101		84				185		**19:00**	106		115				221	
07:15	108		97				205		**19:15**	83		70				153	
07:30	128		94				222		**19:30**	97		81				178	
07:45	114	451	145	420			259	871	**19:45**	86	372	91	357			177	729
08:00	166		128				294		**20:00**	89		76				165	
08:15	92		146				238		**20:15**	78		45				123	
08:30	81		128				209		**20:30**	68		41				109	
08:45	117	456	123	525			240	981	**20:45**	54	289	35	197			89	486
09:00	79		117				196		**21:00**	49		30				79	
09:15	75		83				158		**21:15**	61		29				90	
09:30	80		113				193		**21:30**	45		25				70	
09:45	123	357	98	411			221	768	**21:45**	36	191	18	102			54	293
10:00	93		74				167		**22:00**	46		20				66	
10:15	98		107				205		**22:15**	31		11				42	
10:30	98		98				196		**22:30**	27		13				40	
10:45	87	376	92	371			179	747	**22:45**	24	128	19	63			43	191
11:00	115		95				210		**23:00**	33		12				45	
11:15	100		88				188		**23:15**	26		7				33	
11:30	110		122				232		**23:30**	21		10				31	
11:45	111	436	122	427			233	863	**23:45**	13	93	12	41			25	134
TOTALS		2439		2771				**5210**	**TOTALS**		4772		4027				**8799**
SPLIT %		46.8%		53.2%				**37.2%**	**SPLIT %**		54.2%		45.8%				**62.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	7,211	6,798	0	0	14,009

AM Peak Hour	07:15	07:45			**07:30**				**PM Peak Hour**	16:45	14:45			**14:45**			
AM Pk Volume	516	547			**1013**				**PM Pk Volume**	668	593			**1144**			
Pk Hr Factor	0.777	0.937			**0.861**				**Pk Hr Factor**	0.933	0.842			**0.960**			
7 - 9 Volume	907	945	0	0	**1852**				**4 - 6 Volume**	1240	919	0	0	**2159**			
7 - 9 Peak Hour	07:15	07:45			**07:30**				**4 - 6 Peak Hour**	16:45	16:00			**16:45**			
7 - 9 Pk Volume	516	547	0	0	**1013**				**4 - 6 Pk Volume**	668	481	0	0	**1126**			
Pk Hr Factor	0.777	0.937	0.000	0.000	**0.861**				**Pk Hr Factor**	0.933	0.918	0.000	0.000	**0.932**			

Prepared by NDS/ATD

VOLUME

6th St Bet. Pennsylvania Ave & Xenia Ave

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,998	5,354	11,352

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		3		14		12:00			109		99		208	
00:15			5		5		10		12:15			104		110		214	
00:30			9		6		15		12:30			109		111		220	
00:45			6	31	6	20	12	51	12:45			82	404	92	412	174	816
01:00			5		3		8		13:00			95		95		190	
01:15			4		1		5		13:15			121		105		226	
01:30			3		5		8		13:30			93		91		184	
01:45			7	19	3	12	10	31	13:45			137	446	101	392	238	838
02:00			2		2		4		14:00			116		96		212	
02:15			3		5		8		14:15			121		108		229	
02:30			2		4		6		14:30			129		111		240	
02:45			6	13	6	17	12	30	14:45			143	509	103	418	246	927
03:00			2		6		8		15:00			101		97		198	
03:15			2		1		3		15:15			116		101		217	
03:30			5		2		7		15:30			148		89		237	
03:45			9	18	3	12	12	30	15:45			127	492	95	382	222	874
04:00			3		5		8		16:00			108		115		223	
04:15			9		1		10		16:15			113		114		227	
04:30			15		7		22		16:30			125		122		247	
04:45			7	34	6	19	13	53	16:45			109	455	131	482	240	937
05:00			13		6		19		17:00			128		134		262	
05:15			10		2		12		17:15			116		119		235	
05:30			16		8		24		17:30			124		120		244	
05:45			30	69	25	41	55	110	17:45			100	468	92	465	192	933
06:00			27		17		44		18:00			74		83		157	
06:15			33		17		50		18:15			87		75		162	
06:30			40		29		69		18:30			61		68		129	
06:45			56	156	38	101	94	257	18:45			64	286	70	296	134	582
07:00			50		47		97		19:00			62		73		135	
07:15			36		40		76		19:15			73		60		133	
07:30			63		69		132		19:30			62		69		131	
07:45			99	248	102	258	201	506	19:45			66	263	59	261	125	524
08:00			99		84		183		20:00			77		44		121	
08:15			105		101		206		20:15			40		36		76	
08:30			88		88		176		20:30			69		35		104	
08:45			75	367	92	365	167	732	20:45			40	226	44	159	84	385
09:00			81		73		154		21:00			37		38		75	
09:15			95		66		161		21:15			38		32		70	
09:30			102		86		188		21:30			32		35		67	
09:45			99	377	97	322	196	699	21:45			26	133	33	138	59	271
10:00			94		86		180		22:00			21		26		47	
10:15			123		93		216		22:15			20		19		39	
10:30			97		80		177		22:30			20		20		40	
10:45			111	425	70	329	181	754	22:45			18	79	15	80	33	159
11:00			118		87		205		23:00			18		10		28	
11:15			103		71		174		23:15			20		17		37	
11:30			94		84		178		23:30			10		8		18	
11:45			108	423	85	327	193	750	23:45			9	57	11	46	20	103
TOTALS				2180		1823		4003	TOTALS				3818		3531		7349
SPLIT %				54.5%		45.5%		35.3%	SPLIT %				52.0%		48.0%		64.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,998	5,354	11,352

AM Peak Hour				10:15	11:45	11:45	PM Peak Hour				14:00	16:30	16:30
AM Pk Volume				449	405	835	PM Pk Volume				509	506	984
Pk Hr Factor				0.913	0.912	0.949	Pk Hr Factor				0.890	0.944	0.939
7 - 9 Volume	0	0		615	623	1238	4 - 6 Volume	0	0		923	947	1870
7 - 9 Peak Hour				07:45	07:45	07:45	4 - 6 Peak Hour				16:30	16:30	16:30
7 - 9 Pk Volume	0	0		391	375	766	4 - 6 Pk Volume	0	0		478	506	984
Pk Hr Factor	0.000	0.000		0.931	0.919	0.930	Pk Hr Factor	0.000	0.000		0.934	0.944	0.939

Prepared by NDS/ATD

VOLUME

Highland Springs Ave Bet. 6th St & 5th St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_014

DAILY TOTALS	NB	SB	EB	WB	Total
	12,258	11,552	0	0	23,810

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	25		32						57		**12:00**	181		161						342	
00:15	30		23						53		**12:15**	185		159						344	
00:30	29		22						51		**12:30**	198		162						360	
00:45	18	102	8	85					26	187	**12:45**	200	764	181	663					381	1427
01:00	17		21						38		**13:00**	193		169						362	
01:15	16		17						33		**13:15**	191		192						383	
01:30	12		10						22		**13:30**	204		183						387	
01:45	13	58	17	65					30	123	**13:45**	205	793	198	742					403	1535
02:00	16		21						37		**14:00**	223		187						410	
02:15	19		11						30		**14:15**	210		195						405	
02:30	15		12						27		**14:30**	239		223						462	
02:45	17	67	12	56					29	123	**14:45**	232	904	228	833					460	1737
03:00	10		10						20		**15:00**	216		193						409	
03:15	13		11						24		**15:15**	222		222						444	
03:30	8		13						21		**15:30**	197		210						407	
03:45	12	43	10	44					22	87	**15:45**	230	865	189	814					419	1679
04:00	13		15						28		**16:00**	200		226						426	
04:15	13		10						23		**16:15**	240		243						483	
04:30	15		11						26		**16:30**	242		215						457	
04:45	24	65	21	57					45	122	**16:45**	238	920	207	891					445	1811
05:00	40		25						65		**17:00**	239		242						481	
05:15	41		33						74		**17:15**	254		211						465	
05:30	52		48						100		**17:30**	241		213						454	
05:45	70	203	73	179					143	382	**17:45**	266	1000	229	895					495	1895
06:00	56		64						120		**18:00**	225		165						390	
06:15	83		71						154		**18:15**	236		189						425	
06:30	74		85						159		**18:30**	179		198						377	
06:45	111	324	99	319					210	643	**18:45**	174	814	198	750					372	1564
07:00	108		125						233		**19:00**	174		163						337	
07:15	145		143						288		**19:15**	173		156						329	
07:30	150		155						305		**19:30**	141		148						289	
07:45	184	587	206	629					390	1216	**19:45**	156	644	131	598					287	1242
08:00	144		158						302		**20:00**	147		157						304	
08:15	142		156						298		**20:15**	134		102						236	
08:30	127		168						295		**20:30**	128		115						243	
08:45	165	578	208	690					373	1268	**20:45**	122	531	128	502					250	1033
09:00	146		187						333		**21:00**	121		111						232	
09:15	142		142						284		**21:15**	126		89						215	
09:30	160		139						299		**21:30**	115		102						217	
09:45	167	615	160	628					327	1243	**21:45**	106	468	81	383					187	851
10:00	155		166						321		**22:00**	98		79						177	
10:15	191		162						353		**22:15**	105		71						176	
10:30	161		162						323		**22:30**	75		58						133	
10:45	205	712	184	674					389	1386	**22:45**	53	331	68	276					121	607
11:00	161		140						301		**23:00**	64		52						116	
11:15	155		162						317		**23:15**	56		49						105	
11:30	179		165						344		**23:30**	40		41						81	
11:45	170	665	141	608					311	1273	**23:45**	45	205	29	171					74	376
TOTALS		4019		4034						**8053**	**TOTALS**		8239		7518						**15757**
SPLIT %		49.9%		50.1%						**33.8%**	**SPLIT %**		52.3%		47.7%						**66.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	12,258	11,552	0	0	23,810

AM Peak Hour	11:45	08:15			**10:00**	**PM Peak Hour**	17:00	16:15			**17:00**
AM Pk Volume	734	719			**1386**	**PM Pk Volume**	1000	907			**1895**
Pk Hr Factor	0.927	0.864			**0.891**	**Pk Hr Factor**	0.940	0.933			**0.957**
7 - 9 Volume	1165	1319	0	0	**2484**	**4 - 6 Volume**	1920	1786	0	0	**3706**
7 - 9 Peak Hour	07:15	08:00			**07:30**	**4 - 6 Peak Hour**	17:00	16:15			**17:00**
7 - 9 Pk Volume	623	690	0	0	**1295**	**4 - 6 Pk Volume**	1000	907	0	0	**1895**
Pk Hr Factor	0.846	0.829	0.000	0.000	**0.830**	**Pk Hr Factor**	0.940	0.933	0.000	0.000	**0.957**

Prepared by NDS/ATD

VOLUME

Veile Ave Bet. Luis Estrada Rd & 4th St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_015

DAILY TOTALS	NB	SB	EB	WB	Total
	1,323	1,547	0	0	2,870

AM Period	NB		SB		EB		WB		TOTAL	
00:00	13		5						18	
00:15	3		1						4	
00:30	4		1						5	
00:45	4	24	3	10					7	34
01:00	5		0						5	
01:15	8		2						10	
01:30	9		1						10	
01:45	5	27	2	5					7	32
02:00	17		0						17	
02:15	5		4						9	
02:30	5		0						5	
02:45	14	41	0	4					14	45
03:00	16		2						18	
03:15	7		13						20	
03:30	11		4						15	
03:45	8	42	9	28					17	70
04:00	6		5						11	
04:15	10		5						15	
04:30	8		11						19	
04:45	4	28	14	35					18	63
05:00	2		14						16	
05:15	4		19						23	
05:30	3		30						33	
05:45	10	19	38	101					48	120
06:00	5		15						20	
06:15	12		14						26	
06:30	4		28						32	
06:45	15	36	36	93					51	129
07:00	9		24						33	
07:15	10		47						57	
07:30	11		15						26	
07:45	10	40	33	119					43	159
08:00	11		27						38	
08:15	12		24						36	
08:30	15		17						32	
08:45	20	58	37	105					57	163
09:00	13		19						32	
09:15	12		20						32	
09:30	20		24						44	
09:45	20	65	22	85					42	150
10:00	11		19						30	
10:15	16		23						39	
10:30	19		13						32	
10:45	19	65	36	91					55	156
11:00	20		23						43	
11:15	31		36						67	
11:30	18		34						52	
11:45	28	97	29	122					57	219
TOTALS		542		798						**1340**
SPLIT %		40.4%		59.6%						**46.7%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	24		23						47	
12:15	18		17						35	
12:30	18		24						42	
12:45	14	74	26	90					40	164
13:00	18		24						42	
13:15	15		10						25	
13:30	27		25						52	
13:45	12	72	20	79					32	151
14:00	28		11						39	
14:15	21		22						43	
14:30	54		23						77	
14:45	19	122	26	82					45	204
15:00	17		35						52	
15:15	15		27						42	
15:30	49		27						76	
15:45	29	110	24	113					53	223
16:00	55		25						80	
16:15	36		25						61	
16:30	22		23						45	
16:45	32	145	16	89					48	234
17:00	53		27						80	
17:15	11		19						30	
17:30	22		21						43	
17:45	13	99	23	90					36	189
18:00	10		8						18	
18:15	13		16						29	
18:30	13		12						25	
18:45	12	48	11	47					23	95
19:00	4		8						12	
19:15	2		11						13	
19:30	9		11						20	
19:45	3	18	10	40					13	58
20:00	4		8						12	
20:15	4		8						12	
20:30	6		12						18	
20:45	11	25	18	46					29	71
21:00	9		10						19	
21:15	9		12						21	
21:30	5		9						14	
21:45	7	30	10	41					17	71
22:00	2		3						5	
22:15	5		5						10	
22:30	1		5						6	
22:45	11	19	2	15					13	34
23:00	8		2						10	
23:15	2		6						8	
23:30	6		3						9	
23:45	3	19	6	17					9	36
TOTALS		781		749						**1530**
SPLIT %		51.0%		49.0%						**53.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,323	1,547	0	0	2,870

AM Peak Hour	11:15	06:30			**11:15**	**PM Peak Hour**	15:30	14:45			**15:30**
AM Pk Volume	101	135			**223**	**PM Pk Volume**	169	115			**270**
Pk Hr Factor	0.815	0.718			**0.832**	**Pk Hr Factor**	0.768	0.821			**0.844**
7 - 9 Volume	98	224	0	0	**322**	**4 - 6 Volume**	244	179	0	0	**423**
7 - 9 Peak Hour	08:00	07:15			**07:15**	**4 - 6 Peak Hour**	16:00	16:15			**16:00**
7 - 9 Pk Volume	58	122	0	0	**164**	**4 - 6 Pk Volume**	145	91	0	0	**234**
Pk Hr Factor	0.725	0.649	0.000	0.000	**0.719**	**Pk Hr Factor**	0.659	0.843	0.000	0.000	**0.731**

Prepared by NDS/ATD

VOLUME

Pennsylvania Ave Bet. I-10 EB on-ramp & 3rd St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_016

DAILY TOTALS	NB	SB	EB	WB	Total
	5,353	5,275	0	0	10,628

AM Period	NB		SB		EB		WB		TOTAL	
00:00	6		8						14	
00:15	3		5						8	
00:30	5		4						9	
00:45	4	18	2	19					6	37
01:00	5		1						6	
01:15	1		3						4	
01:30	3		0						3	
01:45	0	9	2	6					2	15
02:00	1		2						3	
02:15	3		4						7	
02:30	1		2						3	
02:45	1	6	0	8					1	14
03:00	1		5						6	
03:15	0		4						4	
03:30	2		2						4	
03:45	4	7	5	16					9	23
04:00	6		5						11	
04:15	7		2						9	
04:30	8		6						14	
04:45	17	38	14	27					31	65
05:00	13		9						22	
05:15	22		19						41	
05:30	25		40						65	
05:45	44	104	40	108					84	212
06:00	35		23						58	
06:15	43		44						87	
06:30	49		67						116	
06:45	95	222	83	217					178	439
07:00	51		61						112	
07:15	46		62						108	
07:30	61		63						124	
07:45	96	254	106	292					202	546
08:00	84		81						165	
08:15	97		72						169	
08:30	85		83						168	
08:45	80	346	77	313					157	659
09:00	88		72						160	
09:15	47		59						106	
09:30	56		57						113	
09:45	68	259	63	251					131	510
10:00	68		65						133	
10:15	72		90						162	
10:30	92		88						180	
10:45	71	303	64	307					135	610
11:00	79		65						144	
11:15	77		72						149	
11:30	87		75						162	
11:45	88	331	79	291					167	622
TOTALS		1897		1855						3752
SPLIT %		50.6%		49.4%						35.3%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	92		66						158	
12:15	77		92						169	
12:30	93		92						185	
12:45	95	357	87	337					182	694
13:00	83		69						152	
13:15	80		71						151	
13:30	72		84						156	
13:45	87	322	99	323					186	645
14:00	109		103						212	
14:15	113		90						203	
14:30	107		137						244	
14:45	124	453	114	444					238	897
15:00	103		115						218	
15:15	160		121						281	
15:30	143		150						293	
15:45	90	496	122	508					212	1004
16:00	98		130						228	
16:15	106		92						198	
16:30	107		107						214	
16:45	114	425	97	426					211	851
17:00	109		122						231	
17:15	111		110						221	
17:30	114		110						224	
17:45	94	428	98	440					192	868
18:00	88		79						167	
18:15	93		92						185	
18:30	80		65						145	
18:45	75	336	77	313					152	649
19:00	80		68						148	
19:15	50		57						107	
19:30	59		51						110	
19:45	72	261	44	220					116	481
20:00	58		25						83	
20:15	36		54						90	
20:30	37		45						82	
20:45	33	164	33	157					66	321
21:00	28		43						71	
21:15	23		32						55	
21:30	24		28						52	
21:45	25	100	27	130					52	230
22:00	19		21						40	
22:15	22		19						41	
22:30	16		26						42	
22:45	16	73	19	85					35	158
23:00	14		15						29	
23:15	13		12						25	
23:30	9		2						11	
23:45	5	41	8	37					13	78
TOTALS		3456		3420						6876
SPLIT %		50.3%		49.7%						64.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	5,353	5,275	0	0	10,628

AM Peak Hour	07:45	07:45			07:45	PM Peak Hour	14:45	15:15			14:45
AM Pk Volume	362	342			704	PM Pk Volume	530	523			1030
Pk Hr Factor	0.933	0.807			0.871	Pk Hr Factor	0.828	0.872			0.879
7 - 9 Volume	600	605	0	0	1205	4 - 6 Volume	853	866	0	0	1719
7 - 9 Peak Hour	07:45	07:45			07:45	4 - 6 Peak Hour	16:45	17:00			16:45
7 - 9 Pk Volume	362	342	0	0	704	4 - 6 Pk Volume	448	440	0	0	887
Pk Hr Factor	0.933	0.807	0.000	0.000	0.871	Pk Hr Factor	0.982	0.902	0.000	0.000	0.960

Prepared by NDS/ATD

VOLUME

Highland Springs Ave Bet. I-10 EB Ramps & 1st St

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_017

DAILY TOTALS	NB	SB	EB	WB	Total
	10,637	15,123	0	0	25,760

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	13		29				42		**12:00**	196		276				472	
00:15	10		39				49		**12:15**	215		272				487	
00:30	15		27				42		**12:30**	222		261				483	
00:45	10	48	15	110			25	158	**12:45**	200	833	283	1092			483	1925
01:00	10		27				37		**13:00**	206		267				473	
01:15	10		16				26		**13:15**	190		282				472	
01:30	5		19				24		**13:30**	205		274				479	
01:45	8	33	16	78			24	111	**13:45**	210	811	269	1092			479	1903
02:00	3		11				14		**14:00**	222		260				482	
02:15	6		20				26		**14:15**	262		267				529	
02:30	3		11				14		**14:30**	231		243				474	
02:45	4	16	14	56			18	72	**14:45**	198	913	274	1044			472	1957
03:00	4		8				12		**15:00**	245		266				511	
03:15	1		10				11		**15:15**	242		308				550	
03:30	7		13				20		**15:30**	263		296				559	
03:45	7	19	21	52			28	71	**15:45**	228	978	292	1162			520	2140
04:00	8		10				18		**16:00**	203		279				482	
04:15	3		12				15		**16:15**	250		270				520	
04:30	13		20				33		**16:30**	224		264				488	
04:45	27	51	61	103			88	154	**16:45**	230	907	275	1088			505	1995
05:00	13		22				35		**17:00**	199		257				456	
05:15	19		27				46		**17:15**	212		289				501	
05:30	27		44				71		**17:30**	177		261				438	
05:45	69	128	104	197			173	325	**17:45**	217	805	263	1070			480	1875
06:00	40		69				109		**18:00**	163		235				398	
06:15	57		94				151		**18:15**	142		228				370	
06:30	67		124				191		**18:30**	162		243				405	
06:45	80	244	128	415			208	659	**18:45**	158	625	218	924			376	1549
07:00	77		126				203		**19:00**	123		220				343	
07:15	95		134				229		**19:15**	119		194				313	
07:30	95		161				256		**19:30**	115		159				274	
07:45	137	404	209	630			346	1034	**19:45**	101	458	178	751			279	1209
08:00	128		196				324		**20:00**	102		154				256	
08:15	121		188				309		**20:15**	94		157				251	
08:30	133		238				371		**20:30**	68		129				197	
08:45	158	540	236	858			394	1398	**20:45**	75	339	144	584			219	923
09:00	137		226				363		**21:00**	66		134				200	
09:15	128		213				341		**21:15**	54		126				180	
09:30	127		244				371		**21:30**	49		114				163	
09:45	149	541	220	903			369	1444	**21:45**	35	204	85	459			120	663
10:00	167		247				414		**22:00**	33		59				92	
10:15	191		241				432		**22:15**	33		55				88	
10:30	190		264				454		**22:30**	34		48				82	
10:45	194	742	260	1012			454	1754	**22:45**	18	118	43	205			61	323
11:00	206		274				480		**23:00**	22		32				54	
11:15	178		258				436		**23:15**	21		30				51	
11:30	209		284				493		**23:30**	14		25				39	
11:45	213	806	311	1127			524	1933	**23:45**	17	74	24	111			41	185
TOTALS		3572		5541				**9113**	**TOTALS**		7065		9582				**16647**
SPLIT %		39.2%		60.8%				**35.4%**	**SPLIT %**		42.4%		57.6%				**64.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	10,637	15,123	0	0	25,760

AM Peak Hour	11:45	11:30						**11:30**	**PM Peak Hour**	15:00	15:15						**15:00**
AM Pk Volume	846	1143						**1976**	**PM Pk Volume**	978	1175						**2140**
Pk Hr Factor	0.953	0.919						**0.943**	**Pk Hr Factor**	0.930	0.954						**0.957**
7 - 9 Volume	944	1488	0	0				**2432**	**4 - 6 Volume**	1712	2158	0	0				**3870**
7 - 9 Peak Hour	08:00	08:00						**08:00**	**4 - 6 Peak Hour**	16:00	16:00						**16:00**
7 - 9 Pk Volume	540	858	0	0				**1398**	**4 - 6 Pk Volume**	907	1088	0	0				**1995**
Pk Hr Factor	0.854	0.901	0.000	0.000				**0.887**	**Pk Hr Factor**	0.907	0.975	0.000	0.000				**0.959**

Prepared by NDS/ATD

VOLUME

1st St Bet. Pennsylvania Ave & Highland Springs Ave

Day: Tuesday
Date: 5/8/2018

City: Beaumont
Project #: CA18_6060_018

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,221	6,680	12,901

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		25		36		**12:00**			134		131		265	
00:15			5		25		30		**12:15**			104		128		232	
00:30			5		16		21		**12:30**			132		120		252	
00:45			2	23	10	76	12	99	**12:45**			127	497	109	488	236	985
01:00			2		8		10		**13:00**			118		125		243	
01:15			5		10		15		**13:15**			120		125		245	
01:30			3		14		17		**13:30**			109		145		254	
01:45			2	12	8	40	10	52	**13:45**			112	459	126	521	238	980
02:00			0		6		6		**14:00**			124		123		247	
02:15			3		9		12		**14:15**			97		154		251	
02:30			2		6		8		**14:30**			113		131		244	
02:45			2	7	8	29	10	36	**14:45**			103	437	117	525	220	962
03:00			3		3		6		**15:00**			113		151		264	
03:15			1		1		2		**15:15**			122		130		252	
03:30			7		6		13		**15:30**			151		130		281	
03:45			9	20	4	14	13	34	**15:45**			116	502	118	529	234	1031
04:00			5		5		10		**16:00**			120		117		237	
04:15			5		4		9		**16:15**			114		150		264	
04:30			10		2		12		**16:30**			114		131		245	
04:45			15	35	15	26	30	61	**16:45**			113	461	148	546	261	1007
05:00			12		12		24		**17:00**			104		161		265	
05:15			13		5		18		**17:15**			81		129		210	
05:30			22		15		37		**17:30**			88		139		227	
05:45			39	86	15	47	54	133	**17:45**			104	377	117	546	221	923
06:00			33		17		50		**18:00**			109		107		216	
06:15			53		18		71		**18:15**			103		102		205	
06:30			58		32		90		**18:30**			100		82		182	
06:45			62	206	47	114	109	320	**18:45**			94	406	108	399	202	805
07:00			62		63		125		**19:00**			89		101		190	
07:15			85		46		131		**19:15**			63		92		155	
07:30			75		67		142		**19:30**			90		98		188	
07:45			97	319	72	248	169	567	**19:45**			77	319	87	378	164	697
08:00			83		65		148		**20:00**			67		76		143	
08:15			103		53		156		**20:15**			60		72		132	
08:30			83		68		151		**20:30**			46		66		112	
08:45			115	384	62	248	177	632	**20:45**			35	208	66	280	101	488
09:00			98		67		165		**21:00**			33		59		92	
09:15			86		91		177		**21:15**			31		59		90	
09:30			104		91		195		**21:30**			25		50		75	
09:45			87	375	107	356	194	731	**21:45**			26	115	47	215	73	330
10:00			92		97		189		**22:00**			19		48		67	
10:15			114		83		197		**22:15**			19		27		46	
10:30			93		99		192		**22:30**			9		32		41	
10:45			133	432	109	388	242	820	**22:45**			13	60	17	124	30	184
11:00			112		95		207		**23:00**			14		38		52	
11:15			96		108		204		**23:15**			9		17		26	
11:30			117		136		253		**23:30**			11		11		22	
11:45			118	443	121	460	239	903	**23:45**			4	38	17	83	21	121
TOTALS				2342		2046		**4388**	**TOTALS**				3879		4634		**8513**
SPLIT %				53.4%		46.6%		**34.0%**	**SPLIT %**				45.6%		54.4%		**66.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,221	6,680	12,901

AM Peak Hour			11:45	11:30	**11:30**	**PM Peak Hour**			15:15	16:15	**16:15**
AM Pk Volume			488	516	**989**	**PM Pk Volume**			509	590	**1035**
Pk Hr Factor			0.910	0.949	**0.933**	**Pk Hr Factor**			0.843	0.916	**0.976**
7 - 9 Volume	0	0	703	496	**1199**	**4 - 6 Volume**	0	0	838	1092	**1930**
7 - 9 Peak Hour			08:00	07:45	**08:00**	**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	384	258	**632**	**4 - 6 Pk Volume**	0	0	461	590	**1035**
Pk Hr Factor	0.000	0.000	0.835	0.896	**0.893**	**Pk Hr Factor**	0.000	0.000	0.960	0.916	**0.976**

APPENDIX B: SYNCHRO REPORTS

SYNCRO ANALYSIS

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	13	8	11	9	8	13	6	350	13	10	484	21
Future Vol, veh/h	13	8	11	9	8	13	6	350	13	10	484	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	9	12	10	9	15	7	393	15	11	544	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	793	1000	284	714	1005	204	568	0	0	408	0	0
Stage 1	578	578	-	415	415	-	-	-	-	-	-	-
Stage 2	215	422	-	299	590	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	279	242	713	319	240	803	1000	-	-	1147	-	-
Stage 1	468	499	-	585	591	-	-	-	-	-	-	-
Stage 2	767	587	-	685	493	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	261	236	713	299	234	803	1000	-	-	1147	-	-
Mov Cap-2 Maneuver	261	236	-	299	234	-	-	-	-	-	-	-
Stage 1	464	492	-	580	586	-	-	-	-	-	-	-
Stage 2	735	582	-	652	486	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	15.6	0.1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1000	-	-	323	373	1147	-	-
HCM Lane V/C Ratio	0.007	-	-	0.111	0.09	0.01	-	-
HCM Control Delay (s)	8.6	0	-	17.5	15.6	8.2	0.1	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0	-	-

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	62	22	43	58	45	17	280	29	60	391	41
Future Vol, veh/h	33	62	22	43	58	45	17	280	29	60	391	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	67	24	46	62	48	18	301	31	65	420	44
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.2	11.5	11.5	13.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	11%	0%	28%	29%	23%	0%
Vol Thru, %	89%	83%	53%	40%	77%	83%
Vol Right, %	0%	17%	19%	31%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	157	169	117	146	256	237
LT Vol	17	0	33	43	60	0
Through Vol	140	140	62	58	196	196
RT Vol	0	29	22	45	0	41
Lane Flow Rate	169	182	126	157	275	254
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.292	0.305	0.221	0.27	0.463	0.411
Departure Headway (Hd)	6.227	6.05	6.337	6.187	6.063	5.821
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	576	592	564	578	593	618
Service Time	3.985	3.808	4.405	4.25	3.814	3.571
HCM Lane V/C Ratio	0.293	0.307	0.223	0.272	0.464	0.411
HCM Control Delay	11.6	11.5	11.2	11.5	14	12.6
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.2	1.3	0.8	1.1	2.4	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	212	95	53	296	18	326	88	65	54	98	8
Future Volume (veh/h)	7	212	95	53	296	18	326	88	65	54	98	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	230	103	58	322	20	354	96	71	59	107	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	370	313	101	456	386	444	304	225	102	191	16
Arrive On Green	0.01	0.20	0.20	0.06	0.24	0.24	0.25	0.30	0.30	0.06	0.11	0.11
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	999	739	1781	1701	143
Grp Volume(v), veh/h	8	230	103	58	322	20	354	0	167	59	0	116
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1737	1781	0	1845
Q Serve(g_s), s	0.2	5.3	2.6	1.5	7.4	0.5	8.7	0.0	3.5	1.5	0.0	2.8
Cycle Q Clear(g_c), s	0.2	5.3	2.6	1.5	7.4	0.5	8.7	0.0	3.5	1.5	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		0.08
Lane Grp Cap(c), veh/h	19	370	313	101	456	386	444	0	529	102	0	207
V/C Ratio(X)	0.43	0.62	0.33	0.58	0.71	0.05	0.80	0.00	0.32	0.58	0.00	0.56
Avail Cap(c_a), veh/h	190	1238	1049	361	1417	1201	1388	0	1928	361	0	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	17.2	16.1	21.6	16.2	13.6	16.5	0.0	12.5	21.5	0.0	19.7
Incr Delay (d2), s/veh	14.5	1.7	0.6	5.1	2.0	0.1	3.3	0.0	0.3	5.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	0.9	0.7	3.0	0.1	3.4	0.0	1.2	0.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	18.9	16.7	26.7	18.2	13.6	19.8	0.0	12.9	26.6	0.0	22.1
LnGrp LOS	D	B	B	C	B	B	B	A	B	C	A	C
Approach Vol, veh/h		341			400			521			175	
Approach Delay, s/veh		18.7			19.2			17.6			23.6	
Approach LOS		B			B			B			C	

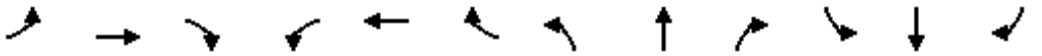
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	18.8	7.1	13.8	16.2	9.8	5.0	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	52.0	9.5	31.0	36.5	25.0	5.0	35.5
Max Q Clear Time (g_c+I1), s	3.5	5.5	3.5	7.3	10.7	4.8	2.2	9.4
Green Ext Time (p_c), s	0.0	1.1	0.0	1.7	1.1	0.5	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	238	47	94	231	90	41	186	63	117	275	72
Future Volume (veh/h)	64	238	47	94	231	90	41	186	63	117	275	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	270	53	107	262	102	47	211	72	133	312	82
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	610	118	138	434	368	403	788	261	454	840	217
Arrive On Green	0.05	0.21	0.21	0.08	0.23	0.23	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	2970	574	1781	1870	1585	990	2622	869	1096	2794	723
Grp Volume(v), veh/h	73	160	163	107	262	102	47	141	142	133	197	197
Grp Sat Flow(s),veh/h/ln	1781	1777	1767	1781	1870	1585	990	1777	1714	1096	1777	1740
Q Serve(g_s), s	1.5	2.9	3.0	2.2	4.7	2.0	1.5	2.2	2.4	3.9	3.2	3.3
Cycle Q Clear(g_c), s	1.5	2.9	3.0	2.2	4.7	2.0	4.8	2.2	2.4	6.3	3.2	3.3
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.51	1.00		0.42
Lane Grp Cap(c), veh/h	91	365	363	138	434	368	403	534	515	454	534	523
V/C Ratio(X)	0.81	0.44	0.45	0.78	0.60	0.28	0.12	0.26	0.28	0.29	0.37	0.38
Avail Cap(c_a), veh/h	957	1910	1899	957	2011	1704	903	1433	1382	1008	1433	1403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	12.9	12.9	16.9	12.8	11.7	12.2	9.9	9.9	12.3	10.2	10.3
Incr Delay (d2), s/veh	6.2	0.8	0.9	3.5	1.4	0.4	0.1	0.3	0.3	0.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.0	1.0	0.9	1.7	0.6	0.3	0.7	0.7	0.8	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	13.7	13.8	20.4	14.1	12.1	12.3	10.1	10.2	12.7	10.7	10.7
LnGrp LOS	C	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		396			471			330			527	
Approach Delay, s/veh		15.6			15.1			10.5			11.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	14.1		16.7	7.4	13.1		16.7
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5
Max Green Setting (Gmax), s	20.0	40.0		30.0	20.0	40.0		30.0
Max Q Clear Time (g_c+I1), s	3.5	6.7		6.8	4.2	5.0		8.3
Green Ext Time (p_c), s	0.1	2.0		1.9	0.1	2.0		2.9

Intersection Summary		
HCM 6th Ctrl Delay	13.1	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	10	21	36	6	8	40	262	13	4	341	2
Future Volume (vph)	8	10	21	36	6	8	40	262	13	4	341	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		4.5		4.5	5.5	
Lane Util. Factor		1.00	1.00		1.00	1.00		0.95		1.00	0.95	
Frt		1.00	0.85		1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.98	1.00		0.96	1.00		0.99		0.95	1.00	
Satd. Flow (prot)		1824	1583		1786	1583		3495		1770	3536	
Flt Permitted		0.86	1.00		0.74	1.00		0.81		0.95	1.00	
Satd. Flow (perm)		1604	1583		1381	1583		2858		1770	3536	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	11	22	38	6	8	42	276	14	4	359	2
RTOR Reduction (vph)	0	0	20	0	0	7	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	2	0	44	1	0	330	0	4	361	0
Turn Type	custom	NA	custom	custom	NA	custom	custom	NA		Prot	NA	
Protected Phases										1!	6	
Permitted Phases	8	8	8	8	8	8	2 5 7	2 5 7!				
Actuated Green, G (s)		10.8	10.8		10.8	10.8		78.1		5.6	17.3	
Effective Green, g (s)		10.8	10.8		10.8	10.8		78.1		5.6	17.3	
Actuated g/C Ratio		0.11	0.11		0.11	0.11		0.78		0.06	0.17	
Clearance Time (s)		6.5	6.5		6.5	6.5				4.5	5.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0				2.0	2.0	
Lane Grp Cap (vph)		173	171		149	171		2234		99	612	
v/s Ratio Prot										0.00	c0.10	
v/s Ratio Perm		0.01	0.00		c0.03	0.00		c0.12				
v/c Ratio		0.11	0.01		0.30	0.01		0.15		0.04	0.59	
Uniform Delay, d1		40.2	39.8		41.0	39.8		2.7		44.6	38.0	
Progression Factor		1.00	1.00		1.00	1.00		0.26		1.00	1.00	
Incremental Delay, d2		0.1	0.0		0.4	0.0		0.0		0.1	0.9	
Delay (s)		40.3	39.8		41.4	39.8		0.7		44.7	39.0	
Level of Service		D	D		D	D		A		D	D	
Approach Delay (s)		40.0			41.2			0.7			39.0	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	20.5
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	356	6	3	389	66	4	4	6	29	6	29
Future Vol, veh/h	43	356	6	3	389	66	4	4	6	29	6	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	405	7	3	442	75	5	5	7	33	7	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	517	0	0	412	0	0	1013	1030	206	751	958	442
Stage 1	-	-	-	-	-	-	507	507	-	448	448	-
Stage 2	-	-	-	-	-	-	506	523	-	303	510	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	1047	-	-	1145	-	-	205	233	801	313	257	615
Stage 1	-	-	-	-	-	-	517	538	-	589	572	-
Stage 2	-	-	-	-	-	-	548	530	-	682	537	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1047	-	-	1145	-	-	183	221	801	294	244	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	183	221	-	294	244	-
Stage 1	-	-	-	-	-	-	493	513	-	561	570	-
Stage 2	-	-	-	-	-	-	511	528	-	639	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	17.9	16.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	1047	-	-	1145	-	-	376
HCM Lane V/C Ratio	0.054	0.047	-	-	0.003	-	-	0.193
HCM Control Delay (s)	17.9	8.6	-	-	8.2	-	-	16.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	264	173	85	267	30	162	189	109	46	289	52
Future Volume (veh/h)	24	264	173	85	267	30	162	189	109	46	289	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	290	190	93	293	33	178	208	120	51	318	57
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	481	306	122	908	101	383	742	629	479	613	110
Arrive On Green	0.02	0.23	0.23	0.07	0.28	0.28	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	2082	1326	1781	3223	360	1008	1870	1585	1052	1544	277
Grp Volume(v), veh/h	26	246	234	93	160	166	178	208	120	51	0	375
Grp Sat Flow(s),veh/h/ln	1781	1777	1632	1781	1777	1806	1008	1870	1585	1052	0	1821
Q Serve(g_s), s	0.7	6.3	6.6	2.6	3.6	3.7	8.3	3.9	2.5	1.8	0.0	8.0
Cycle Q Clear(g_c), s	0.7	6.3	6.6	2.6	3.6	3.7	16.3	3.9	2.5	5.6	0.0	8.0
Prop In Lane	1.00		0.81	1.00		0.20	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	32	410	377	122	500	509	383	742	629	479	0	723
V/C Ratio(X)	0.81	0.60	0.62	0.76	0.32	0.33	0.46	0.28	0.19	0.11	0.00	0.52
Avail Cap(c_a), veh/h	697	1391	1277	697	1391	1414	575	1098	931	679	0	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	17.5	17.6	23.4	14.5	14.5	17.9	10.5	10.1	12.4	0.0	11.7
Incr Delay (d2), s/veh	35.5	1.4	1.7	9.2	0.4	0.4	0.9	0.2	0.1	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	2.4	1.3	1.3	1.4	1.8	1.4	0.8	0.4	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	18.9	19.3	32.6	14.9	14.9	18.8	10.7	10.2	12.5	0.0	12.3
LnGrp LOS	E	B	B	C	B	B	B	B	B	B	A	B
Approach Vol, veh/h		506			419			506			426	
Approach Delay, s/veh		21.2			18.8			13.4			12.3	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	19.9		25.8	8.0	17.3		25.8
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5
Max Green Setting (Gmax), s	20.0	40.0		30.0	20.0	40.0		30.0
Max Q Clear Time (g_c+I1), s	2.7	5.7		10.0	4.6	8.6		18.3
Green Ext Time (p_c), s	0.0	2.0		2.5	0.2	3.2		2.0

Intersection Summary		
HCM 6th Ctrl Delay		16.5
HCM 6th LOS		B

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	308	2	2	245	45	1	0	1	126	0	125
Future Vol, veh/h	79	308	2	2	245	45	1	0	1	126	0	125
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	321	2	2	255	47	1	0	1	131	0	130
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

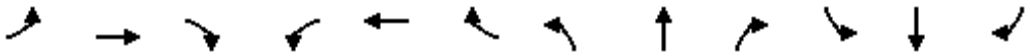
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.8	10.6	9.5	13.8
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	50%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	0%	0%	100%	98%	0%	100%	64%	0%
Vol Right, %	50%	0%	0%	2%	0%	0%	36%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	79	205	105	2	163	127	251
LT Vol	1	79	0	0	2	0	0	126
Through Vol	0	0	205	103	0	163	82	0
RT Vol	1	0	0	2	0	0	45	125
Lane Flow Rate	2	82	214	109	2	170	132	261
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.004	0.145	0.346	0.176	0.004	0.282	0.209	0.446
Departure Headway (Hd)	6.688	6.333	5.826	5.812	6.469	5.961	5.708	6.145
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	534	567	618	618	554	604	629	586
Service Time	4.438	4.064	3.556	3.543	4.202	3.694	3.441	3.878
HCM Lane V/C Ratio	0.004	0.145	0.346	0.176	0.004	0.281	0.21	0.445
HCM Control Delay	9.5	10.1	11.6	9.8	9.2	11	10	13.8
HCM Lane LOS	A	B	B	A	A	B	A	B
HCM 95th-tile Q	0	0.5	1.5	0.6	0	1.2	0.8	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	188	192	145	156	66	95	423	137	101	548	88
Future Volume (veh/h)	105	188	192	145	156	66	95	423	137	101	548	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	198	202	153	164	69	100	445	144	106	577	93
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1593	711	186	1685	752	127	734	327	134	748	334
Arrive On Green	0.08	0.45	0.45	0.10	0.47	0.47	0.07	0.21	0.21	0.08	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	111	198	202	153	164	69	100	445	144	106	577	93
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.7	3.5	8.8	9.1	2.8	2.6	6.0	12.3	8.6	6.4	16.6	5.3
Cycle Q Clear(g_c), s	6.7	3.5	8.8	9.1	2.8	2.6	6.0	12.3	8.6	6.4	16.6	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	1593	711	186	1685	752	127	734	327	134	748	334
V/C Ratio(X)	0.80	0.12	0.28	0.82	0.10	0.09	0.79	0.61	0.44	0.79	0.77	0.28
Avail Cap(c_a), veh/h	303	1593	711	385	1685	752	287	1293	576	287	1293	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	17.5	18.9	47.7	15.7	15.7	49.6	39.1	37.6	49.4	40.4	36.0
Incr Delay (d2), s/veh	9.8	0.0	0.2	8.8	0.1	0.2	10.3	0.8	0.9	10.0	1.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	1.5	3.2	4.5	1.1	1.0	3.0	5.4	3.4	3.2	7.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	17.5	19.2	56.5	15.9	15.9	59.9	39.9	38.5	59.4	42.1	36.4
LnGrp LOS	E	B	B	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		511			386			689			776	
Approach Delay, s/veh		27.2			32.0			42.5			43.8	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	56.0	12.7	26.9	15.8	53.2	12.2	27.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	51.5	17.5	39.5	23.5	46.5	17.5	39.5
Max Q Clear Time (g_c+I1), s	10.7	4.8	8.4	14.3	11.1	10.8	8.0	18.6
Green Ext Time (p_c), s	0.2	1.3	0.1	3.6	0.3	2.0	0.1	4.2

Intersection Summary	
HCM 6th Ctrl Delay	37.9
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	328	0	121	358	194	0	0	309	89
Future Volume (vph)	0	0	0	328	0	121	358	194	0	0	309	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.0	4.5			4.5	
Lane Util. Factor				0.95	0.95		1.00	0.95			0.95	
Frt				1.00	0.92		1.00	1.00			0.97	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1586		1770	3539			3420	
Flt Permitted				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1586		1770	3539			3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	345	0	127	377	204	0	0	325	94
RTOR Reduction (vph)	0	0	0	0	96	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	0	0	245	131	0	377	204	0	0	396	0
Turn Type				custom	NA		Prot	NA			NA	
Protected Phases							5!	2				
Permitted Phases				7	7						1 6 8!	
Actuated Green, G (s)				23.2	23.2		28.1	40.3			40.2	
Effective Green, g (s)				23.2	23.2		28.1	40.3			33.7	
Actuated g/C Ratio				0.23	0.23		0.28	0.40			0.34	
Clearance Time (s)				4.5	4.5		4.0	4.5				
Vehicle Extension (s)				3.0	3.0		2.0	2.0				
Lane Grp Cap (vph)				390	368		497	1427			1153	
v/s Ratio Prot							c0.21	0.06				
v/s Ratio Perm				c0.15	0.08						c0.12	
v/c Ratio				0.63	0.36		0.76	0.14			0.34	
Uniform Delay, d1				34.5	32.1		32.8	18.9			24.8	
Progression Factor				1.00	1.00		1.00	1.00			0.04	
Incremental Delay, d2				3.2	0.6		5.8	0.0			0.1	
Delay (s)				37.6	32.7		38.6	18.9			1.1	
Level of Service				D	C		D	B			A	
Approach Delay (s)		0.0			35.3			31.7			1.1	
Approach LOS		A			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	20.5
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	16	13	19	3	10	12	23	467	11	5	387	15
Future Vol, veh/h	16	13	19	3	10	12	23	467	11	5	387	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	15	21	3	11	13	26	525	12	6	435	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	1045	226	820	1047	269	452	0	0	537	0	0
Stage 1	456	456	-	583	583	-	-	-	-	-	-	-
Stage 2	320	589	-	237	464	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	287	227	777	267	227	729	1105	-	-	1027	-	-
Stage 1	554	567	-	465	497	-	-	-	-	-	-	-
Stage 2	666	494	-	745	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	262	217	777	238	217	729	1105	-	-	1027	-	-
Mov Cap-2 Maneuver	262	217	-	238	217	-	-	-	-	-	-	-
Stage 1	535	562	-	449	480	-	-	-	-	-	-	-
Stage 2	617	477	-	700	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18	16.8	0.5	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1105	-	-	330	333	1027	-	-
HCM Lane V/C Ratio	0.023	-	-	0.163	0.084	0.005	-	-
HCM Control Delay (s)	8.3	0.1	-	18	16.8	8.5	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.3	0	-	-

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	32	26	36	55	56	30	419	20	30	342	34
Future Vol, veh/h	55	32	26	36	55	56	30	419	20	30	342	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	34	28	39	59	60	32	451	22	32	368	37
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.4	11.7	13.3	12.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	13%	0%	49%	24%	15%	0%
Vol Thru, %	87%	91%	28%	37%	85%	83%
Vol Right, %	0%	9%	23%	38%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	230	113	147	201	205
LT Vol	30	0	55	36	30	0
Through Vol	210	210	32	55	171	171
RT Vol	0	20	26	56	0	34
Lane Flow Rate	258	247	122	158	216	220
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.439	0.412	0.22	0.275	0.374	0.37
Departure Headway (Hd)	6.134	6.009	6.505	6.267	6.233	6.04
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	597	549	571	575	593
Service Time	3.893	3.767	4.58	4.339	3.995	3.801
HCM Lane V/C Ratio	0.441	0.414	0.222	0.277	0.376	0.371
HCM Control Delay	13.6	13	11.4	11.7	12.7	12.3
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	2.2	2	0.8	1.1	1.7	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	395	167	57	269	21	259	79	82	22	60	9
Future Volume (veh/h)	10	395	167	57	269	21	259	79	82	22	60	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	429	182	62	292	23	282	86	89	24	65	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	571	484	101	650	551	358	224	232	50	148	23
Arrive On Green	0.01	0.31	0.31	0.06	0.35	0.35	0.20	0.27	0.27	0.03	0.09	0.09
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	842	871	1781	1583	244
Grp Volume(v), veh/h	11	429	182	62	292	23	282	0	175	24	0	75
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1714	1781	0	1827
Q Serve(g_s), s	0.3	10.8	4.7	1.8	6.3	0.5	7.9	0.0	4.4	0.7	0.0	2.0
Cycle Q Clear(g_c), s	0.3	10.8	4.7	1.8	6.3	0.5	7.9	0.0	4.4	0.7	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		0.13
Lane Grp Cap(c), veh/h	25	571	484	101	650	551	358	0	457	50	0	171
V/C Ratio(X)	0.44	0.75	0.38	0.61	0.45	0.04	0.79	0.00	0.38	0.48	0.00	0.44
Avail Cap(c_a), veh/h	170	1106	938	323	1267	1074	1241	0	1700	323	0	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	16.4	14.3	24.2	13.2	11.3	19.9	0.0	15.7	25.1	0.0	22.5
Incr Delay (d2), s/veh	11.5	2.0	0.5	5.9	0.5	0.0	3.9	0.0	0.5	6.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.3	1.5	0.9	2.4	0.2	3.3	0.0	1.6	0.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	18.4	14.8	30.1	13.7	11.3	23.7	0.0	16.2	32.0	0.0	24.2
LnGrp LOS	D	B	B	C	B	B	C	A	B	C	A	C
Approach Vol, veh/h		622			377			457			99	
Approach Delay, s/veh		17.7			16.2			20.9			26.1	
Approach LOS		B			B			C			C	

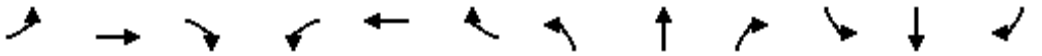
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	18.5	7.5	20.5	15.0	9.4	5.2	22.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	52.0	9.5	31.0	36.5	25.0	5.0	35.5
Max Q Clear Time (g_c+I1), s	2.3	6.4	3.8	12.8	9.9	4.0	2.3	8.3
Green Ext Time (p_c), s	0.0	1.2	0.0	3.2	0.8	0.3	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	364	40	127	269	132	50	234	103	141	263	45
Future Volume (veh/h)	94	364	40	127	269	132	50	234	103	141	263	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	414	45	144	306	150	57	266	117	160	299	51
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	723	78	188	470	398	423	802	343	404	1007	170
Arrive On Green	0.08	0.22	0.22	0.11	0.25	0.25	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3234	350	1781	1870	1585	1031	2423	1037	1000	3042	513
Grp Volume(v), veh/h	107	226	233	144	306	150	57	193	190	160	173	177
Grp Sat Flow(s),veh/h/ln	1781	1777	1807	1781	1870	1585	1031	1777	1684	1000	1777	1778
Q Serve(g_s), s	2.7	5.2	5.2	3.6	6.7	3.6	2.0	3.7	3.9	6.5	3.3	3.4
Cycle Q Clear(g_c), s	2.7	5.2	5.2	3.6	6.7	3.6	5.4	3.7	3.9	10.4	3.3	3.4
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.62	1.00		0.29
Lane Grp Cap(c), veh/h	139	397	404	188	470	398	423	588	557	404	588	588
V/C Ratio(X)	0.77	0.57	0.58	0.77	0.65	0.38	0.13	0.33	0.34	0.40	0.29	0.30
Avail Cap(c_a), veh/h	781	1559	1586	781	1641	1391	760	1169	1108	731	1169	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	15.8	15.8	19.8	15.3	14.1	13.3	11.4	11.5	15.4	11.3	11.3
Incr Delay (d2), s/veh	3.4	1.3	1.3	2.5	1.5	0.6	0.1	0.3	0.4	0.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.9	2.0	1.4	2.6	1.2	0.4	1.3	1.3	1.3	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	17.0	17.1	22.3	16.8	14.7	13.5	11.8	11.9	16.1	11.6	11.6
LnGrp LOS	C	B	B	C	B	B	B	B	B	B	B	B
Approach Vol, veh/h		566			600			440			510	
Approach Delay, s/veh		18.4			17.6			12.0			13.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	16.9		20.6	9.3	15.7		20.6
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5
Max Green Setting (Gmax), s	20.0	40.0		30.0	20.0	40.0		30.0
Max Q Clear Time (g_c+I1), s	4.7	8.7		7.4	5.6	7.2		12.4
Green Ext Time (p_c), s	0.1	2.5		2.6	0.2	3.0		2.7

Intersection Summary		
HCM 6th Ctrl Delay		15.5
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	8	41	41	8	9	42	352	35	5	338	4
Future Volume (vph)	24	8	41	41	8	9	42	352	35	5	338	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5	6.5		4.5		4.5	5.5	
Lane Util. Factor		1.00	1.00		1.00	1.00		0.95		1.00	0.95	
Frt		1.00	0.85		1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1795	1583		1787	1583		3479		1770	3533	
Flt Permitted		0.74	1.00		0.74	1.00		0.83		0.95	1.00	
Satd. Flow (perm)		1387	1583		1372	1583		2901		1770	3533	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	25	8	43	43	8	9	44	371	37	5	356	4
RTOR Reduction (vph)	0	0	38	0	0	8	0	4	0	0	1	0
Lane Group Flow (vph)	0	33	5	0	51	1	0	448	0	5	359	0
Turn Type	custom	NA	custom	custom	NA	custom	custom	NA		Prot	NA	
Protected Phases										1!	6	
Permitted Phases	8	8	8	8	8	8	2 5 7	2 5 7!				
Actuated Green, G (s)		12.2	12.2		12.2	12.2		87.5		5.5	17.5	
Effective Green, g (s)		12.2	12.2		12.2	12.2		87.5		5.5	17.5	
Actuated g/C Ratio		0.11	0.11		0.11	0.11		0.79		0.05	0.16	
Clearance Time (s)		6.5	6.5		6.5	6.5				4.5	5.5	
Vehicle Extension (s)		2.0	2.0		2.0	2.0				2.0	2.0	
Lane Grp Cap (vph)		152	174		151	174		2293		87	558	
v/s Ratio Prot										0.00	c0.10	
v/s Ratio Perm		0.02	0.00		c0.04	0.00		c0.15				
v/c Ratio		0.22	0.03		0.34	0.01		0.20		0.06	0.64	
Uniform Delay, d1		44.9	44.0		45.5	43.8		2.9		50.1	43.7	
Progression Factor		1.00	1.00		1.00	1.00		0.26		1.00	1.00	
Incremental Delay, d2		0.3	0.0		0.5	0.0		0.0		0.1	1.9	
Delay (s)		45.2	44.0		46.0	43.9		0.8		50.2	45.6	
Level of Service		D	D		D	D		A		D	D	
Approach Delay (s)		44.5			45.7			0.8			45.7	
Approach LOS		D			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	20.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	541	9	13	522	56	11	1	10	12	2	32
Future Vol, veh/h	66	541	9	13	522	56	11	1	10	12	2	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	100	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	75	615	10	15	593	64	13	1	11	14	2	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	657	0	0	625	0	0	1444	1457	313	1081	1398	593
Stage 1	-	-	-	-	-	-	770	770	-	623	623	-
Stage 2	-	-	-	-	-	-	674	687	-	458	775	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.33	6.53	6.93	7.33	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.53	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.53	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319	3.519	4.019	3.319
Pot Cap-1 Maneuver	928	-	-	954	-	-	101	129	684	183	140	505
Stage 1	-	-	-	-	-	-	360	409	-	473	477	-
Stage 2	-	-	-	-	-	-	443	446	-	553	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	928	-	-	954	-	-	86	117	684	166	127	505
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	117	-	166	127	-
Stage 1	-	-	-	-	-	-	331	376	-	435	469	-
Stage 2	-	-	-	-	-	-	403	439	-	498	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.2	34.7	19.3
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	146	928	-	-	954	-	-	304
HCM Lane V/C Ratio	0.171	0.081	-	-	0.015	-	-	0.172
HCM Control Delay (s)	34.7	9.2	-	-	8.8	-	-	19.3
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.3	-	-	0	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	356	212	69	384	77	219	300	125	37	201	40
Future Volume (veh/h)	59	356	212	69	384	77	219	300	125	37	201	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	391	233	76	422	85	241	330	137	41	221	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	597	351	99	843	169	446	726	615	368	588	117
Arrive On Green	0.05	0.28	0.28	0.06	0.29	0.29	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1781	2153	1266	1781	2951	590	1114	1870	1585	926	1515	302
Grp Volume(v), veh/h	65	322	302	76	253	254	241	330	137	41	0	265
Grp Sat Flow(s),veh/h/ln	1781	1777	1642	1781	1777	1764	1114	1870	1585	926	0	1816
Q Serve(g_s), s	2.0	8.9	9.0	2.3	6.6	6.7	11.0	7.3	3.2	1.9	0.0	5.8
Cycle Q Clear(g_c), s	2.0	8.9	9.0	2.3	6.6	6.7	16.8	7.3	3.2	9.2	0.0	5.8
Prop In Lane	1.00		0.77	1.00		0.33	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	83	492	455	99	508	504	446	726	615	368	0	705
V/C Ratio(X)	0.78	0.65	0.66	0.77	0.50	0.50	0.54	0.45	0.22	0.11	0.00	0.38
Avail Cap(c_a), veh/h	642	1281	1184	642	1281	1272	616	1011	857	509	0	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	17.7	17.8	25.9	16.5	16.5	18.2	12.6	11.4	16.0	0.0	12.2
Incr Delay (d2), s/veh	14.3	1.5	1.7	11.7	0.8	0.8	1.0	0.4	0.2	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.4	3.3	1.2	2.5	2.5	2.6	2.7	1.0	0.4	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	19.2	19.4	37.6	17.3	17.3	19.2	13.1	11.6	16.2	0.0	12.5
LnGrp LOS	D	B	B	D	B	B	B	B	B	B	A	B
Approach Vol, veh/h		689			583			708			306	
Approach Delay, s/veh		21.3			19.9			14.9			13.0	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	21.4		27.0	7.6	20.9		27.0				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	20.0	40.0		30.0	20.0	40.0		30.0				
Max Q Clear Time (g_c+I1), s	4.3	8.7		11.2	4.3	11.0		18.8				
Green Ext Time (p_c), s	0.1	3.3		1.7	0.1	4.3		2.8				

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	132	347	2	3	416	103	0	1	1	63	0	82
Future Vol, veh/h	132	347	2	3	416	103	0	1	1	63	0	82
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	138	361	2	3	433	107	0	1	1	66	0	85
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

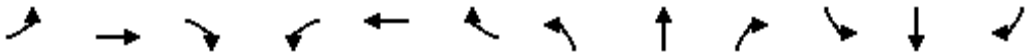
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.1	12.2	9.6	11.9
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	0%	100%	0%	0%	100%	0%	0%	43%
Vol Thru, %	50%	0%	100%	98%	0%	100%	57%	0%
Vol Right, %	50%	0%	0%	2%	0%	0%	43%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	132	231	118	3	277	242	145
LT Vol	0	132	0	0	3	0	0	63
Through Vol	1	0	231	116	0	277	139	0
RT Vol	1	0	0	2	0	0	103	82
Lane Flow Rate	2	138	241	123	3	289	252	151
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.004	0.237	0.382	0.194	0.005	0.456	0.376	0.277
Departure Headway (Hd)	6.834	6.211	5.706	5.694	6.189	5.684	5.382	6.613
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	579	631	631	579	636	670	544
Service Time	4.582	3.939	3.434	3.422	3.916	3.411	3.109	4.349
HCM Lane V/C Ratio	0.004	0.238	0.382	0.195	0.005	0.454	0.376	0.278
HCM Control Delay	9.6	10.9	11.9	9.8	8.9	13.1	11.3	11.9
HCM Lane LOS	A	B	B	A	A	B	B	B
HCM 95th-tile Q	0	0.9	1.8	0.7	0	2.4	1.7	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	254	198	261	285	81	175	625	164	85	507	112
Future Volume (veh/h)	201	254	198	261	285	81	175	625	164	85	507	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	267	208	275	300	85	184	658	173	89	534	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	1341	598	302	1467	654	211	873	390	113	677	302
Arrive On Green	0.13	0.38	0.38	0.17	0.41	0.41	0.12	0.25	0.25	0.06	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	212	267	208	275	300	85	184	658	173	89	534	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	14.6	6.3	11.7	18.9	6.8	4.2	12.7	21.4	11.5	6.1	17.9	8.1
Cycle Q Clear(g_c), s	14.6	6.3	11.7	18.9	6.8	4.2	12.7	21.4	11.5	6.1	17.9	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	1341	598	302	1467	654	211	873	390	113	677	302
V/C Ratio(X)	0.89	0.20	0.35	0.91	0.20	0.13	0.87	0.75	0.44	0.79	0.79	0.39
Avail Cap(c_a), veh/h	264	1341	598	336	1467	654	250	1125	502	250	1125	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	26.1	27.8	50.9	23.5	22.7	54.1	43.5	39.8	57.6	48.1	44.2
Incr Delay (d2), s/veh	27.1	0.1	0.3	26.4	0.3	0.4	24.1	2.2	0.8	11.6	2.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	2.7	4.5	10.6	2.9	1.6	7.1	9.6	4.6	3.1	8.1	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.2	26.2	28.2	77.3	23.8	23.1	78.1	45.7	40.6	69.2	50.2	45.0
LnGrp LOS	F	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		687			660			1015			741	
Approach Delay, s/veh		43.5			46.0			50.7			51.6	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.2	56.0	12.4	35.2	25.6	51.6	19.3	28.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	51.5	17.5	39.5	23.5	46.5	17.5	39.5
Max Q Clear Time (g_c+I1), s	16.6	8.8	8.1	23.4	20.9	13.7	14.7	19.9
Green Ext Time (p_c), s	0.1	2.4	0.1	4.7	0.2	2.6	0.1	3.9

Intersection Summary	
HCM 6th Ctrl Delay	48.3
HCM 6th LOS	D

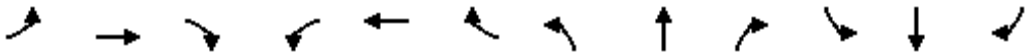


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	622	0	144	315	285	0	0	296	127
Future Volume (vph)	0	0	0	622	0	144	315	285	0	0	296	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.0	4.5			4.5	
Lane Util. Factor				0.95	0.95		1.00	0.95			0.95	
Frt				1.00	0.94		1.00	1.00			0.95	
Flt Protected				0.95	0.97		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1618		1770	3539			3380	
Flt Permitted				0.95	0.97		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1618		1770	3539			3380	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	655	0	152	332	300	0	0	312	134
RTOR Reduction (vph)	0	0	0	0	86	0	0	0	0	0	42	0
Lane Group Flow (vph)	0	0	0	413	308	0	332	300	0	0	404	0
Turn Type				custom	NA		Prot	NA			NA	
Protected Phases							5!	2				
Permitted Phases				7	7						1 6 8!	
Actuated Green, G (s)				34.1	34.1		26.4	38.9			41.7	
Effective Green, g (s)				34.1	34.1		26.4	38.9			35.2	
Actuated g/C Ratio				0.31	0.31		0.24	0.35			0.32	
Clearance Time (s)				4.5	4.5		4.0	4.5				
Vehicle Extension (s)				3.0	3.0		2.0	2.0				
Lane Grp Cap (vph)				517	498		422	1243			1074	
v/s Ratio Prot							c0.19	0.08				
v/s Ratio Perm				c0.25	0.19						c0.12	
v/c Ratio				0.80	0.62		0.79	0.24			0.38	
Uniform Delay, d1				35.2	32.7		39.5	25.4			29.2	
Progression Factor				1.00	1.00		1.00	1.00			0.04	
Incremental Delay, d2				8.4	2.3		8.7	0.0			0.1	
Delay (s)				43.6	35.0		48.2	25.5			1.3	
Level of Service				D	D		D	C			A	
Approach Delay (s)		0.0			39.4			37.4			1.3	
Approach LOS		A			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	20.5
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

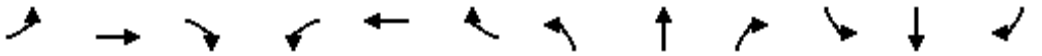
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	100	170	10	20	30	600	60	20	770	40
Future Volume (veh/h)	20	10	100	170	10	20	30	600	60	20	770	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	11	112	191	11	22	34	674	67	22	865	45
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	49	265	408	15	30	310	1038	103	416	1092	57
Arrive On Green	0.21	0.21	0.20	0.21	0.21	0.20	0.62	0.62	0.61	0.62	0.62	0.61
Sat Flow, veh/h	143	234	1277	1272	74	147	613	1674	166	718	1762	92
Grp Volume(v), veh/h	145	0	0	224	0	0	34	0	741	22	0	910
Grp Sat Flow(s),veh/h/ln	1653	0	0	1493	0	0	613	0	1840	718	0	1854
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	2.0	0.0	11.9	0.9	0.0	17.0
Cycle Q Clear(g_c), s	3.6	0.0	0.0	6.0	0.0	0.0	19.0	0.0	11.9	12.8	0.0	17.0
Prop In Lane	0.15		0.77	0.85		0.10	1.00		0.09	1.00		0.05
Lane Grp Cap(c), veh/h	433	0	0	454	0	0	310	0	1141	416	0	1149
V/C Ratio(X)	0.34	0.00	0.00	0.49	0.00	0.00	0.11	0.00	0.65	0.05	0.00	0.79
Avail Cap(c_a), veh/h	985	0	0	918	0	0	670	0	2221	838	0	2238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	16.8	0.0	0.0	13.7	0.0	5.6	9.7	0.0	6.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.8	0.0	0.0	0.2	0.0	0.6	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	2.0	0.0	0.0	0.3	0.0	2.7	0.1	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	0.0	0.0	17.6	0.0	0.0	13.9	0.0	6.3	9.8	0.0	7.9
LnGrp LOS	B	A	A	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		145			224			775			932	
Approach Delay, s/veh		16.6			17.6			6.6			7.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		32.8		13.6		32.8		13.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		55.5		25.5		55.5		25.5				
Max Q Clear Time (g_c+I1), s		21.0		5.6		19.0		8.0				
Green Ext Time (p_c), s		6.8		0.8		9.2		1.2				

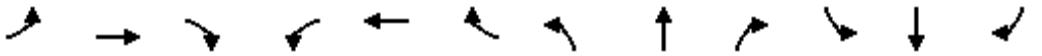
Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	120	140	190	260	100	60	500	60	110	700	230
Future Volume (veh/h)	90	120	140	190	260	100	60	500	60	110	700	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	129	151	204	280	108	65	538	65	118	753	247
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	181	212	423	357	138	309	1080	482	407	1138	508
Arrive On Green	0.07	0.23	0.22	0.12	0.28	0.27	0.06	0.30	0.30	0.08	0.32	0.32
Sat Flow, veh/h	1781	785	919	1781	1285	496	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	97	0	280	204	0	388	65	538	65	118	753	247
Grp Sat Flow(s),veh/h/ln	1781	0	1705	1781	0	1781	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	9.2	5.0	0.0	12.2	1.5	7.5	1.8	2.7	11.1	7.6
Cycle Q Clear(g_c), s	2.4	0.0	9.2	5.0	0.0	12.2	1.5	7.5	1.8	2.7	11.1	7.6
Prop In Lane	1.00		0.54	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	328	0	393	423	0	495	309	1080	482	407	1138	508
V/C Ratio(X)	0.30	0.00	0.71	0.48	0.00	0.78	0.21	0.50	0.13	0.29	0.66	0.49
Avail Cap(c_a), veh/h	398	0	731	529	0	885	373	1618	722	542	1818	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	21.6	14.7	0.0	20.3	13.5	17.3	15.3	12.9	17.8	16.6
Incr Delay (d2), s/veh	0.5	0.0	2.4	0.9	0.0	2.8	0.3	0.4	0.1	0.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.7	1.9	0.0	5.0	0.5	2.8	0.6	1.0	4.2	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	24.0	15.6	0.0	23.0	13.9	17.7	15.4	13.3	18.4	17.3
LnGrp LOS	B	A	C	B	A	C	B	B	B	B	B	B
Approach Vol, veh/h		377			592			668			1118	
Approach Delay, s/veh		22.2			20.5			17.1			17.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	22.4	11.4	18.0	7.8	23.4	8.5	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.9	27.1	10.5	25.5	5.5	30.5	6.4	29.6
Max Q Clear Time (g_c+I1), s	4.7	9.5	7.0	11.2	3.5	13.1	4.4	14.2
Green Ext Time (p_c), s	0.1	3.6	0.2	1.4	0.0	5.8	0.0	2.2

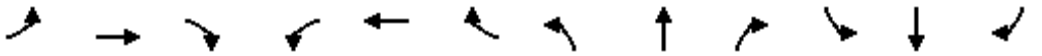
Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	320	50	140	350	140	70	410	100	140	800	90
Future Volume (veh/h)	80	320	50	140	350	140	70	410	100	140	800	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	364	57	159	398	159	80	466	114	159	909	102
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	747	116	213	541	458	244	1624	724	421	1471	165
Arrive On Green	0.07	0.24	0.22	0.12	0.29	0.29	0.46	0.46	0.46	0.46	0.46	0.43
Sat Flow, veh/h	1781	3082	479	1781	1870	1585	558	3554	1585	834	3221	361
Grp Volume(v), veh/h	91	208	213	159	398	159	80	466	114	159	501	510
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	1870	1585	558	1777	1585	834	1777	1805
Q Serve(g_s), s	3.3	6.7	6.8	5.7	12.7	5.3	8.4	5.4	2.8	9.8	14.1	14.2
Cycle Q Clear(g_c), s	3.3	6.7	6.8	5.7	12.7	5.3	22.6	5.4	2.8	15.2	14.1	14.2
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	130	430	432	213	541	458	244	1624	724	421	812	825
V/C Ratio(X)	0.70	0.48	0.49	0.75	0.74	0.35	0.33	0.29	0.16	0.38	0.62	0.62
Avail Cap(c_a), veh/h	221	708	711	473	1011	857	359	2361	1053	594	1180	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	21.5	21.8	28.2	21.3	18.6	22.2	11.2	10.5	16.0	13.6	13.7
Incr Delay (d2), s/veh	2.6	0.8	0.9	1.9	2.0	0.5	0.8	0.1	0.1	0.6	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.7	2.8	2.4	5.4	1.9	1.1	1.9	0.9	1.8	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	22.4	22.6	30.1	23.2	19.1	23.0	11.3	10.6	16.5	14.4	14.5
LnGrp LOS	C	C	C	C	C	B	C	B	B	B	B	B
Approach Vol, veh/h		512			716			660			1170	
Approach Delay, s/veh		24.3			23.8			12.6			14.7	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	23.1		34.3	11.9	20.0		34.3				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	7.7	34.3		42.5	17.1	24.9		42.5				
Max Q Clear Time (g_c+I1), s	5.3	14.7		24.6	7.7	8.8		17.2				
Green Ext Time (p_c), s	0.0	2.9		4.1	0.1	2.2		8.7				

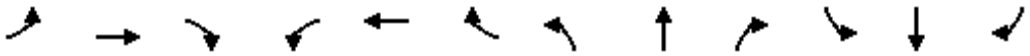
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	460	20	10	570	90	20	10	10	30	10	40
Future Volume (veh/h)	70	460	20	10	570	90	20	10	10	30	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	523	23	11	648	102	23	11	11	34	11	45
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	438	1058	47	583	939	148	253	108	64	222	57	130
Arrive On Green	0.59	0.59	0.58	0.59	0.59	0.58	0.17	0.17	0.15	0.17	0.17	0.15
Sat Flow, veh/h	712	1778	78	861	1577	248	544	657	389	442	346	788
Grp Volume(v), veh/h	80	0	546	11	0	750	45	0	0	90	0	0
Grp Sat Flow(s),veh/h/ln	712	0	1856	861	0	1826	1589	0	0	1576	0	0
Q Serve(g_s), s	2.9	0.0	5.6	0.2	0.0	9.4	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	12.3	0.0	5.6	5.9	0.0	9.4	0.7	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.14	0.51		0.24	0.38		0.50
Lane Grp Cap(c), veh/h	438	0	1104	583	0	1086	425	0	0	409	0	0
V/C Ratio(X)	0.18	0.00	0.49	0.02	0.00	0.69	0.11	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1339	0	3453	1672	0	3396	1080	0	0	1075	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	0.0	3.9	5.6	0.0	4.7	12.0	0.0	0.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.0	0.0	0.8	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.8	0.0	0.0	1.3	0.2	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	4.2	5.6	0.0	5.5	12.1	0.0	0.0	12.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		626			761			45			90	
Approach Delay, s/veh		4.8			5.5			12.1			12.6	
Approach LOS		A			A			B			B	

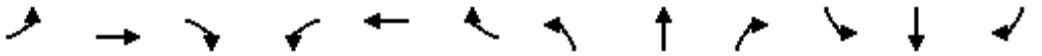
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		23.8		9.5		23.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		61.5		19.5		61.5				
Max Q Clear Time (g_c+I1), s		2.7		14.3		3.6		11.4				
Green Ext Time (p_c), s		0.1		5.0		0.3		6.9				

Intersection Summary												
HCM 6th Ctrl Delay			5.8									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	450	20	10	590	60	10	10	20	90	10	70
Future Volume (vph)	40	450	20	10	590	60	10	10	20	90	10	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1851		1652	3257		1770	1863	1583	1770	1618	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1851		1652	3257		1770	1863	1583	1770	1618	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	500	22	11	656	67	11	11	22	100	11	78
RTOR Reduction (vph)	0	1	0	0	6	0	0	0	20	0	67	0
Lane Group Flow (vph)	44	521	0	11	717	0	11	11	2	100	22	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.3	30.4		0.5	28.6		4.9	4.9	4.9	8.0	8.0	
Effective Green, g (s)	3.3	32.4		1.5	30.6		5.9	5.9	5.9	9.0	9.0	
Actuated g/C Ratio	0.05	0.50		0.02	0.47		0.09	0.09	0.09	0.14	0.14	
Clearance Time (s)	5.0	6.0		5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	3.5		1.5	3.5		4.0	4.0	4.0	2.0	2.0	
Lane Grp Cap (vph)	90	925		38	1538		161	169	144	245	224	
v/s Ratio Prot	c0.02	c0.28		0.01	0.22		c0.01	0.01		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.49	0.56		0.29	0.47		0.07	0.07	0.01	0.41	0.10	
Uniform Delay, d1	29.9	11.3		31.1	11.6		26.9	26.9	26.8	25.5	24.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.9		1.5	0.3		0.2	0.2	0.1	0.4	0.1	
Delay (s)	31.4	12.1		32.7	11.8		27.2	27.2	26.9	25.9	24.4	
Level of Service	C	B		C	B		C	C	C	C	C	
Approach Delay (s)		13.6			12.2			27.0			25.2	
Approach LOS		B			B			C			C	

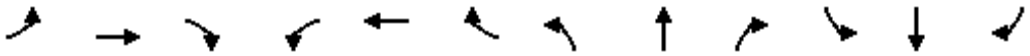
Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	340	180	250	390	110	200	220	230	130	390	80
Future Volume (veh/h)	40	340	180	250	390	110	200	220	230	130	390	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	374	198	275	429	121	220	242	253	143	429	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	501	261	314	992	277	315	901	763	437	725	149
Arrive On Green	0.04	0.22	0.21	0.18	0.36	0.35	0.48	0.48	0.48	0.48	0.48	0.47
Sat Flow, veh/h	1781	2258	1177	1781	2743	767	884	1870	1585	902	1506	309
Grp Volume(v), veh/h	44	293	279	275	277	273	220	242	253	143	0	517
Grp Sat Flow(s),veh/h/ln	1781	1777	1658	1781	1777	1732	884	1870	1585	902	0	1815
Q Serve(g_s), s	2.4	15.3	15.7	15.0	11.7	12.0	24.0	7.7	9.8	11.2	0.0	20.7
Cycle Q Clear(g_c), s	2.4	15.3	15.7	15.0	11.7	12.0	44.6	7.7	9.8	18.9	0.0	20.7
Prop In Lane	1.00		0.71	1.00		0.44	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	65	394	368	314	643	626	315	901	763	437	0	874
V/C Ratio(X)	0.68	0.74	0.76	0.88	0.43	0.44	0.70	0.27	0.33	0.33	0.00	0.59
Avail Cap(c_a), veh/h	182	561	524	331	709	692	315	901	763	437	0	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.4	36.1	36.8	40.0	24.1	24.4	34.9	15.4	15.9	21.0	0.0	18.8
Incr Delay (d2), s/veh	11.6	3.2	3.9	21.5	0.5	0.5	6.7	0.2	0.3	0.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	6.9	6.7	8.4	4.9	4.9	5.6	3.2	3.5	2.4	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	39.4	40.8	61.5	24.5	24.9	41.6	15.6	16.2	21.4	0.0	19.9
LnGrp LOS	E	D	D	E	C	C	D	B	B	C	A	B
Approach Vol, veh/h		616			825			715			660	
Approach Delay, s/veh		41.4			37.0			23.8			20.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	40.1		52.0	21.6	26.1		52.0				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	9.7	38.3		46.5	18.0	30.0		46.5				
Max Q Clear Time (g_c+I1), s	4.4	14.0		22.7	17.0	17.7		46.6				
Green Ext Time (p_c), s	0.0	3.5		4.5	0.1	2.9		0.0				

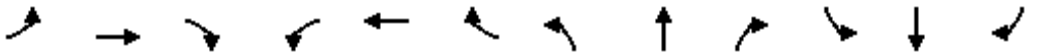
Intersection Summary												
HCM 6th Ctrl Delay			30.7									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	560	10	10	590	90	10	0	10	130	0	150
Future Volume (veh/h)	130	560	10	10	590	90	10	0	10	130	0	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	583	10	10	615	94	10	0	10	135	0	156
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	486	1504	26	466	1052	161	299	39	212	289	28	223
Arrive On Green	0.11	0.42	0.41	0.02	0.34	0.33	0.27	0.00	0.26	0.27	0.00	0.26
Sat Flow, veh/h	1781	3575	61	1781	3091	472	632	144	776	604	103	817
Grp Volume(v), veh/h	135	290	303	10	353	356	20	0	0	291	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1785	1552	0	0	1523	0	0
Q Serve(g_s), s	1.8	4.8	4.8	0.2	7.0	7.0	0.0	0.0	0.0	5.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	4.8	4.8	0.2	7.0	7.0	0.4	0.0	0.0	7.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.26	0.50		0.50	0.46		0.54
Lane Grp Cap(c), veh/h	486	748	782	466	605	608	551	0	0	540	0	0
V/C Ratio(X)	0.28	0.39	0.39	0.02	0.58	0.59	0.04	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	528	1787	1870	651	1787	1796	1436	0	0	1496	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	8.6	8.6	8.7	11.6	11.7	11.5	0.0	0.0	14.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.3	0.0	0.9	0.9	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.5	0.0	2.3	2.4	0.1	0.0	0.0	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	8.9	8.9	8.7	12.5	12.6	11.5	0.0	0.0	14.8	0.0	0.0
LnGrp LOS	A	A	A	A	B	B	B	A	A	B	A	A
Approach Vol, veh/h		728			719			20			291	
Approach Delay, s/veh		8.7			12.5			11.5			14.8	
Approach LOS		A			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.7	5.1	22.0		15.7	8.5	18.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		38.5	5.0	42.5		38.5	5.0	42.5				
Max Q Clear Time (g_c+I1), s		2.4	2.2	6.8		9.3	3.8	9.0				
Green Ext Time (p_c), s		0.1	0.0	4.0		1.9	0.0	5.0				

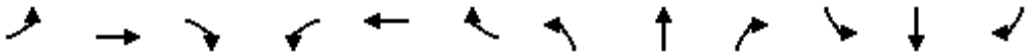
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	310	240	150	340	70	170	470	140	120	670	190
Future Volume (veh/h)	160	310	240	150	340	70	170	470	140	120	670	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	326	253	158	358	74	179	495	147	126	705	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	1603	815	214	1571	797	218	935	515	109	928	527
Arrive On Green	0.07	0.45	0.45	0.06	0.44	0.44	0.06	0.26	0.26	0.06	0.26	0.26
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	168	326	253	158	358	74	179	495	147	126	705	200
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.7	5.5	9.1	4.4	6.2	2.4	5.0	11.7	6.8	6.0	18.0	9.5
Cycle Q Clear(g_c), s	4.7	5.5	9.1	4.4	6.2	2.4	5.0	11.7	6.8	6.0	18.0	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	1603	815	214	1571	797	218	935	515	109	928	527
V/C Ratio(X)	0.68	0.20	0.31	0.74	0.23	0.09	0.82	0.53	0.29	1.16	0.76	0.38
Avail Cap(c_a), veh/h	246	1603	815	214	1571	797	218	1354	702	109	1347	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	16.3	13.8	45.4	17.0	12.7	45.6	31.0	24.7	46.2	33.5	25.1
Incr Delay (d2), s/veh	7.6	0.1	0.2	12.6	0.3	0.2	21.7	0.5	0.3	135.8	1.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.2	3.2	2.3	2.5	0.9	2.8	5.0	2.6	6.7	7.8	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	16.4	14.0	57.9	17.4	13.0	67.2	31.5	25.0	182.0	35.0	25.6
LnGrp LOS	D	B	B	E	B	B	E	C	C	F	D	C
Approach Vol, veh/h		747			590			821			1031	
Approach Delay, s/veh		23.6			27.7			38.1			51.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	47.5	10.0	29.9	10.1	48.4	10.2	29.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	43.0	5.5	37.0	5.6	43.9	5.7	36.8
Max Q Clear Time (g_c+I1), s	6.7	8.2	8.0	13.7	6.4	11.1	7.0	20.0
Green Ext Time (p_c), s	0.0	2.8	0.0	3.9	0.0	3.2	0.0	5.2

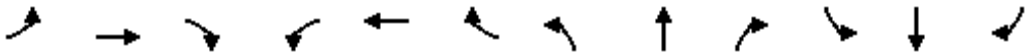
Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	350	0	170	370	460	0	0	810	150
Future Volume (vph)	0	0	0	350	0	170	370	460	0	0	810	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			5.0	
Lane Util. Factor				0.95	0.95		1.00	0.95			0.95	
Frt				1.00	0.89		1.00	1.00			0.98	
Flt Protected				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1559		1770	3539			3456	
Flt Permitted				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1559		1770	3539			3456	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	368	0	179	389	484	0	0	853	158
RTOR Reduction (vph)	0	0	0	0	87	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	294	166	0	389	484	0	0	995	0
Turn Type				Prot	NA		Prot	NA			NA	
Protected Phases				8			5	2				
Permitted Phases					8						6	
Actuated Green, G (s)				18.9	18.9		22.6	58.4			30.8	
Effective Green, g (s)				19.4	19.4		22.6	58.9			31.3	
Actuated g/C Ratio				0.22	0.22		0.26	0.68			0.36	
Clearance Time (s)				4.5	4.5		4.0	4.5			5.5	
Vehicle Extension (s)				3.0	3.0		2.0	2.0			2.0	
Lane Grp Cap (vph)				377	350		463	2415			1253	
v/s Ratio Prot				c0.17			c0.22	0.14				
v/s Ratio Perm					0.11						c0.29	
v/c Ratio				0.78	0.47		0.84	0.20			0.79	
Uniform Delay, d1				31.4	29.0		30.1	5.0			24.6	
Progression Factor				1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2				9.8	1.0		12.4	0.0			3.3	
Delay (s)				41.3	30.0		42.6	5.1			27.9	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			36.1			21.8			27.9	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

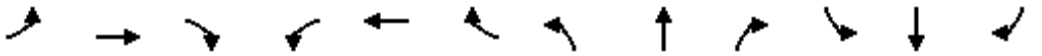
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	20	70	60	10	20	70	760	90	10	550	20
Future Volume (veh/h)	20	20	70	60	10	20	70	760	90	10	550	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	21	74	63	11	21	74	800	95	11	579	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	48	137	287	33	46	596	1082	128	397	1183	43
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.12	0.66	0.66	0.65	0.66	0.66	0.65
Sat Flow, veh/h	224	371	1048	993	256	354	819	1640	195	622	1794	65
Grp Volume(v), veh/h	116	0	0	95	0	0	74	0	895	11	0	600
Grp Sat Flow(s),veh/h/ln	1642	0	0	1604	0	0	819	0	1835	622	0	1859
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	1.9	0.0	12.4	0.5	0.0	6.2
Cycle Q Clear(g_c), s	2.4	0.0	0.0	1.8	0.0	0.0	8.1	0.0	12.4	12.8	0.0	6.2
Prop In Lane	0.18		0.64	0.66		0.22	1.00		0.11	1.00		0.04
Lane Grp Cap(c), veh/h	326	0	0	366	0	0	596	0	1210	397	0	1226
V/C Ratio(X)	0.36	0.00	0.00	0.26	0.00	0.00	0.12	0.00	0.74	0.03	0.00	0.49
Avail Cap(c_a), veh/h	890	0	0	867	0	0	1637	0	3544	1188	0	3590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	0.0	15.2	0.0	0.0	5.3	0.0	4.3	8.6	0.0	3.3
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.9	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.7	0.0	0.0	0.2	0.0	1.6	0.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.0	0.0	15.6	0.0	0.0	5.4	0.0	5.2	8.6	0.0	3.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		116			95			969			611	
Approach Delay, s/veh		16.3			15.6			5.2			3.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.1		9.0		29.1		9.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		73.0		18.0		73.0		18.0				
Max Q Clear Time (g_c+I1), s		14.4		4.4		14.8		3.8				
Green Ext Time (p_c), s		10.2		0.4		4.9		0.3				

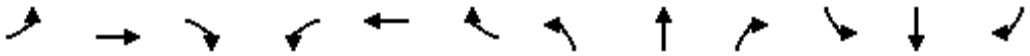
Intersection Summary												
HCM 6th Ctrl Delay			6.0									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	180	90	120	150	110	100	600	100	70	480	80
Future Volume (veh/h)	180	180	90	120	150	110	100	600	100	70	480	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	189	95	126	158	116	105	632	105	74	505	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	299	150	415	223	164	410	1010	451	357	969	432
Arrive On Green	0.12	0.25	0.25	0.09	0.22	0.21	0.08	0.28	0.28	0.07	0.27	0.27
Sat Flow, veh/h	1781	1174	590	1781	1002	736	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	189	0	284	126	0	274	105	632	105	74	505	84
Grp Sat Flow(s),veh/h/ln	1781	0	1764	1781	0	1738	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.1	0.0	7.6	2.8	0.0	7.8	2.1	8.2	2.7	1.5	6.4	2.2
Cycle Q Clear(g_c), s	4.1	0.0	7.6	2.8	0.0	7.8	2.1	8.2	2.7	1.5	6.4	2.2
Prop In Lane	1.00		0.33	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	0	449	415	0	387	410	1010	451	357	969	432
V/C Ratio(X)	0.43	0.00	0.63	0.30	0.00	0.71	0.26	0.63	0.23	0.21	0.52	0.19
Avail Cap(c_a), veh/h	558	0	908	692	0	989	515	1869	834	416	1736	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	17.7	14.0	0.0	19.2	12.2	16.6	14.6	12.5	16.4	14.9
Incr Delay (d2), s/veh	0.7	0.0	1.5	0.4	0.0	2.4	0.3	0.6	0.3	0.3	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	2.9	1.0	0.0	3.1	0.8	3.1	0.9	0.6	2.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	19.2	14.4	0.0	21.6	12.5	17.2	14.9	12.8	16.8	15.1
LnGrp LOS	B	A	B	B	A	C	B	B	B	B	B	B
Approach Vol, veh/h		473			400			842			663	
Approach Delay, s/veh		17.2			19.3			16.3			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	19.1	8.7	17.6	8.4	18.5	10.4	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	27.5	12.5	26.9	7.1	25.5	9.6	29.8
Max Q Clear Time (g_c+I1), s	3.5	10.2	4.8	9.6	4.1	8.4	6.1	9.8
Green Ext Time (p_c), s	0.0	4.4	0.2	1.5	0.1	3.4	0.2	1.6

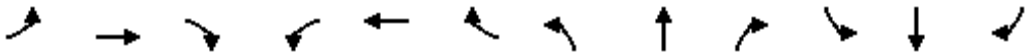
Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	440	40	180	410	180	90	560	180	160	540	70
Future Volume (veh/h)	110	440	40	180	410	180	90	560	180	160	540	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	463	42	189	432	189	95	589	189	168	568	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	837	76	242	563	477	355	1598	713	332	1422	185
Arrive On Green	0.09	0.25	0.23	0.14	0.30	0.30	0.45	0.45	0.45	0.45	0.45	0.43
Sat Flow, veh/h	1781	3296	298	1781	1870	1585	787	3554	1585	694	3162	411
Grp Volume(v), veh/h	116	249	256	189	432	189	95	589	189	168	319	323
Grp Sat Flow(s),veh/h/ln	1781	1777	1817	1781	1870	1585	787	1777	1585	694	1777	1796
Q Serve(g_s), s	4.7	9.1	9.2	7.7	15.7	7.1	6.9	8.2	5.6	15.8	9.0	9.1
Cycle Q Clear(g_c), s	4.7	9.1	9.2	7.7	15.7	7.1	16.0	8.2	5.6	23.9	9.0	9.1
Prop In Lane	1.00		0.16	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	159	451	462	242	563	477	355	1598	713	332	799	808
V/C Ratio(X)	0.73	0.55	0.55	0.78	0.77	0.40	0.27	0.37	0.27	0.51	0.40	0.40
Avail Cap(c_a), veh/h	238	665	680	500	975	826	622	2803	1250	568	1401	1417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	24.2	24.3	31.2	23.8	20.8	19.2	13.6	12.9	21.5	13.8	13.9
Incr Delay (d2), s/veh	2.4	1.1	1.0	2.1	2.2	0.5	0.4	0.1	0.2	1.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.8	3.9	3.3	6.9	2.6	1.2	3.1	1.9	2.5	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	25.3	25.4	33.3	26.0	21.3	19.6	13.7	13.1	22.7	14.1	14.3
LnGrp LOS	D	C	C	C	C	C	B	B	B	C	B	B
Approach Vol, veh/h		621			810			873			810	
Approach Delay, s/veh		27.2			26.6			14.2			16.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	26.5		37.6	14.2	23.0		37.6				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	9.5	37.5		57.5	20.5	26.5		57.5				
Max Q Clear Time (g_c+I1), s	6.7	17.7		18.0	9.7	11.2		25.9				
Green Ext Time (p_c), s	0.0	3.3		6.2	0.2	2.7		6.2				

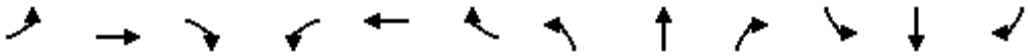
Intersection Summary												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	680	10	20	700	60	20	10	10	20	10	40
Future Volume (veh/h)	70	680	10	20	700	60	20	10	10	20	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	716	11	21	737	63	21	11	11	21	11	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	1160	18	485	1072	92	225	100	61	173	57	136
Arrive On Green	0.63	0.63	0.62	0.63	0.63	0.62	0.15	0.15	0.14	0.15	0.15	0.14
Sat Flow, veh/h	680	1837	28	728	1699	145	524	664	408	313	379	907
Grp Volume(v), veh/h	74	0	727	21	0	800	43	0	0	74	0	0
Grp Sat Flow(s),veh/h/ln	680	0	1865	728	0	1844	1596	0	0	1599	0	0
Q Serve(g_s), s	2.9	0.0	8.6	0.7	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.3	0.0	8.6	9.3	0.0	10.4	0.8	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.08	0.49		0.26	0.28		0.57
Lane Grp Cap(c), veh/h	433	0	1177	485	0	1164	386	0	0	366	0	0
V/C Ratio(X)	0.17	0.00	0.62	0.04	0.00	0.69	0.11	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	1360	0	3720	1476	0	3678	945	0	0	941	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	0.0	4.1	6.9	0.0	4.4	13.6	0.0	0.0	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.5	0.0	0.0	0.7	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.2	0.1	0.0	1.4	0.3	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	0.0	4.6	6.9	0.0	5.1	13.7	0.0	0.0	14.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		801			821			43			74	
Approach Delay, s/veh		5.0			5.2			13.7			14.2	
Approach LOS		A			A			B			B	

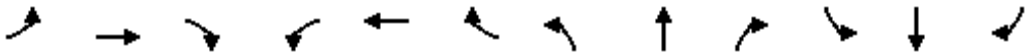
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		27.1		9.5		27.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+I1), s		2.8		15.3		3.4		12.4				
Green Ext Time (p_c), s		0.1		7.3		0.3		7.9				

Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	630	20	10	720	80	10	10	20	80	10	50
Future Volume (vph)	80	630	20	10	720	80	10	10	20	80	10	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1854		1652	3254		1770	1863	1583	1770	1631	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1854		1652	3254		1770	1863	1583	1770	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	663	21	11	758	84	11	11	21	84	11	53
RTOR Reduction (vph)	0	1	0	0	6	0	0	0	19	0	47	0
Lane Group Flow (vph)	84	683	0	11	836	0	11	11	2	84	17	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	7.7	45.2		0.5	38.0		5.3	5.3	5.3	8.2	8.2	
Effective Green, g (s)	8.7	47.2		1.5	40.0		6.3	6.3	6.3	9.2	9.2	
Actuated g/C Ratio	0.11	0.59		0.02	0.50		0.08	0.08	0.08	0.11	0.11	
Clearance Time (s)	5.0	6.0		5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	3.5		1.5	3.5		4.0	4.0	4.0	2.0	2.0	
Lane Grp Cap (vph)	192	1091		30	1622		139	146	124	203	187	
v/s Ratio Prot	c0.05	c0.37		0.01	0.26		c0.01	0.01		c0.05	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.44	0.63		0.37	0.52		0.08	0.08	0.01	0.41	0.09	
Uniform Delay, d1	33.5	10.8		38.9	13.6		34.3	34.3	34.1	33.0	31.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	1.2		2.8	0.3		0.3	0.3	0.1	0.5	0.1	
Delay (s)	34.0	11.9		41.6	13.9		34.6	34.6	34.1	33.5	31.8	
Level of Service	C	B		D	B		C	C	C	C	C	
Approach Delay (s)		14.4			14.2			34.4			32.8	
Approach LOS		B			B			C			C	

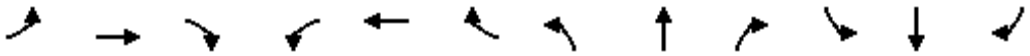
Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	460	220	210	530	140	250	390	330	120	240	50
Future Volume (veh/h)	70	460	220	210	530	140	250	390	330	120	240	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	484	232	221	558	147	263	411	347	126	253	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	670	319	267	1052	276	414	796	675	269	638	134
Arrive On Green	0.06	0.29	0.27	0.15	0.38	0.36	0.43	0.43	0.43	0.43	0.43	0.41
Sat Flow, veh/h	1781	2334	1113	1781	2785	731	1073	1870	1585	707	1500	314
Grp Volume(v), veh/h	74	368	348	221	355	350	263	411	347	126	0	306
Grp Sat Flow(s),veh/h/ln	1781	1777	1670	1781	1777	1739	1073	1870	1585	707	0	1814
Q Serve(g_s), s	3.6	16.3	16.5	10.5	13.6	13.8	19.6	14.1	14.1	14.0	0.0	10.2
Cycle Q Clear(g_c), s	3.6	16.3	16.5	10.5	13.6	13.8	29.8	14.1	14.1	28.1	0.0	10.2
Prop In Lane	1.00		0.67	1.00		0.42	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	106	510	479	267	671	657	414	796	675	269	0	772
V/C Ratio(X)	0.70	0.72	0.73	0.83	0.53	0.53	0.64	0.52	0.51	0.47	0.00	0.40
Avail Cap(c_a), veh/h	247	984	925	318	1055	1032	497	941	798	324	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	28.0	28.6	36.0	21.2	21.5	27.7	18.5	18.5	28.8	0.0	17.4
Incr Delay (d2), s/veh	8.1	1.9	2.1	14.2	0.7	0.7	2.0	0.5	0.6	1.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	7.0	6.7	5.5	5.6	5.6	5.1	5.9	5.0	2.4	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	30.0	30.7	50.2	21.8	22.1	29.6	19.0	19.1	30.1	0.0	17.8
LnGrp LOS	D	C	C	D	C	C	C	B	B	C	A	B
Approach Vol, veh/h		790			926			1021			432	
Approach Delay, s/veh		32.0			28.7			21.8			21.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	37.0		41.2	17.1	29.1		41.2				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	11.6	50.4		42.5	15.1	46.9		42.5				
Max Q Clear Time (g_c+I1), s	5.6	15.8		30.1	12.5	18.5		31.8				
Green Ext Time (p_c), s	0.1	5.1		2.3	0.2	5.1		3.9				

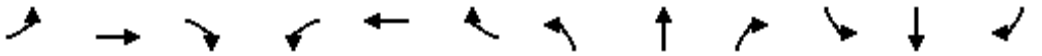
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	710	10	10	780	140	0	10	10	110	0	90
Future Volume (veh/h)	190	710	10	10	780	140	0	10	10	110	0	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	747	11	11	821	147	0	11	11	116	0	95
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	475	1838	27	472	1286	230	0	175	175	268	20	137
Arrive On Green	0.11	0.51	0.50	0.03	0.43	0.42	0.00	0.20	0.19	0.20	0.00	0.19
Sat Flow, veh/h	1781	3585	53	1781	3011	539	0	858	858	727	96	674
Grp Volume(v), veh/h	200	370	388	11	484	484	0	0	22	211	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1861	1781	1777	1773	0	0	1716	1497	0	0
Q Serve(g_s), s	2.5	5.9	5.9	0.2	10.0	10.0	0.0	0.0	0.5	5.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	5.9	5.9	0.2	10.0	10.0	0.0	0.0	0.5	6.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.30	0.00		0.50	0.55		0.45
Lane Grp Cap(c), veh/h	475	911	954	472	759	758	0	0	349	425	0	0
V/C Ratio(X)	0.42	0.41	0.41	0.02	0.64	0.64	0.00	0.00	0.06	0.50	0.00	0.00
Avail Cap(c_a), veh/h	893	1971	2064	642	1572	1569	0	0	778	792	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.0	7.0	7.0	7.0	10.5	10.5	0.0	0.0	15.0	17.1	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.3	0.3	0.0	0.9	0.9	0.0	0.0	0.1	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.7	1.7	0.0	3.2	3.2	0.0	0.0	0.2	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	7.2	7.2	7.1	11.4	11.4	0.0	0.0	15.1	18.0	0.0	0.0
LnGrp LOS	A	A	A	A	B	B	A	A	B	B	A	A
Approach Vol, veh/h		958			979			22			211	
Approach Delay, s/veh		7.3			11.3			15.1			18.0	
Approach LOS		A			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.4	5.2	27.8		13.4	9.1	23.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	5.1	50.9		20.5	15.5	40.5				
Max Q Clear Time (g_c+I1), s		2.5	2.2	7.9		8.0	4.5	12.0				
Green Ext Time (p_c), s		0.0	0.0	5.5		0.9	0.4	7.3				

Intersection Summary												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	350	210	270	590	90	180	670	170	90	620	160
Future Volume (veh/h)	250	350	210	270	590	90	180	670	170	90	620	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	263	368	221	284	621	95	189	705	179	95	653	168
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	1393	815	370	1414	739	218	1010	620	122	819	526
Arrive On Green	0.10	0.39	0.39	0.11	0.40	0.40	0.12	0.28	0.28	0.07	0.23	0.23
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	263	368	221	284	621	95	189	705	179	95	653	168
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.0	7.6	8.5	8.6	13.8	3.7	11.3	19.1	8.4	5.7	18.7	8.6
Cycle Q Clear(g_c), s	8.0	7.6	8.5	8.6	13.8	3.7	11.3	19.1	8.4	5.7	18.7	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	1393	815	370	1414	739	218	1010	620	122	819	526
V/C Ratio(X)	0.75	0.26	0.27	0.77	0.44	0.13	0.87	0.70	0.29	0.78	0.80	0.32
Avail Cap(c_a), veh/h	515	1418	826	512	1414	739	218	1233	720	122	1043	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	22.3	14.8	46.9	23.7	16.4	46.6	34.5	22.6	49.5	39.2	27.0
Incr Delay (d2), s/veh	3.5	0.1	0.2	4.6	1.0	0.4	29.1	1.3	0.3	26.7	3.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.2	3.0	3.9	5.9	1.4	6.7	8.4	3.1	3.4	8.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	22.4	15.0	51.6	24.7	16.7	75.6	35.9	22.8	76.2	42.6	27.3
LnGrp LOS	D	C	B	D	C	B	E	D	C	E	D	C
Approach Vol, veh/h		852			1000			1073			916	
Approach Delay, s/veh		29.2			31.6			40.7			43.3	
Approach LOS		C			C			D			D	

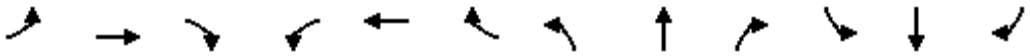
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	47.0	11.4	34.7	15.6	46.4	17.2	28.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.6	42.5	6.9	37.0	15.5	42.6	12.7	31.2
Max Q Clear Time (g_c+I1), s	10.0	15.8	7.7	21.1	10.6	10.5	13.3	20.7
Green Ext Time (p_c), s	0.4	4.9	0.0	5.0	0.4	3.4	0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	640	0	200	330	730	0	0	650	170
Future Volume (vph)	0	0	0	640	0	200	330	730	0	0	650	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			5.0	
Lane Util. Factor				0.95	0.95		0.97	0.95			0.95	
Frt				1.00	0.93		1.00	1.00			0.97	
Flt Protected				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1598		3433	3539			3429	
Flt Permitted				0.95	0.98		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1598		3433	3539			3429	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	674	0	211	347	768	0	0	684	179
RTOR Reduction (vph)	0	0	0	0	46	0	0	0	0	0	28	0
Lane Group Flow (vph)	0	0	0	458	381	0	347	768	0	0	835	0
Turn Type				custom	NA		Prot	NA			NA	
Protected Phases							5	2			6	
Permitted Phases				8	8							
Actuated Green, G (s)				27.0	27.0		11.4	41.3			24.9	
Effective Green, g (s)				27.5	27.5		11.4	41.8			25.4	
Actuated g/C Ratio				0.36	0.36		0.15	0.54			0.33	
Clearance Time (s)				4.5	4.5		4.0	4.5			5.5	
Vehicle Extension (s)				3.0	3.0		2.0	2.0			2.0	
Lane Grp Cap (vph)				598	568		506	1913			1126	
v/s Ratio Prot							c0.10	0.22			c0.24	
v/s Ratio Perm				c0.27	0.24							
v/c Ratio				0.77	0.67		0.69	0.40			0.74	
Uniform Delay, d1				22.0	21.1		31.3	10.4			23.0	
Progression Factor				1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2				5.8	3.1		3.1	0.1			2.3	
Delay (s)				27.9	24.2		34.3	10.5			25.4	
Level of Service				C	C		C	B			C	
Approach Delay (s)		0.0			26.1			17.9			25.4	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

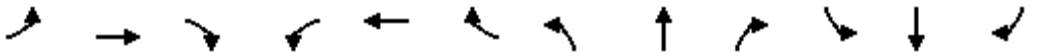
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	120	190	10	20	40	600	70	20	870	40
Future Volume (veh/h)	20	10	120	190	10	20	40	600	70	20	870	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	11	135	213	11	22	45	674	79	22	978	45
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	50	320	364	14	27	221	1055	124	389	1140	52
Arrive On Green	0.24	0.24	0.23	0.24	0.24	0.23	0.64	0.64	0.63	0.64	0.64	0.63
Sat Flow, veh/h	121	210	1354	1109	57	115	551	1643	193	710	1774	82
Grp Volume(v), veh/h	168	0	0	246	0	0	45	0	753	22	0	1023
Grp Sat Flow(s),veh/h/ln	1686	0	0	1281	0	0	551	0	1836	710	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	6.2	0.0	0.0	4.7	0.0	16.4	1.3	0.0	28.9
Cycle Q Clear(g_c), s	5.8	0.0	0.0	12.0	0.0	0.0	33.6	0.0	16.4	17.7	0.0	28.9
Prop In Lane	0.13		0.80	0.87		0.09	1.00		0.10	1.00		0.04
Lane Grp Cap(c), veh/h	460	0	0	404	0	0	221	0	1179	389	0	1192
V/C Ratio(X)	0.37	0.00	0.00	0.61	0.00	0.00	0.20	0.00	0.64	0.06	0.00	0.86
Avail Cap(c_a), veh/h	685	0	0	589	0	0	344	0	1590	547	0	1607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	23.8	0.0	0.0	22.8	0.0	7.2	12.5	0.0	9.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.5	0.0	0.0	0.4	0.0	0.6	0.1	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	3.5	0.0	0.0	0.6	0.0	4.9	0.2	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	0.0	0.0	25.3	0.0	0.0	23.2	0.0	7.7	12.6	0.0	13.1
LnGrp LOS	C	A	A	C	A	A	C	A	A	B	A	B
Approach Vol, veh/h		168			246			798			1045	
Approach Delay, s/veh		22.1			25.3			8.6			13.1	
Approach LOS		C			C			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.3		19.5		46.3		19.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		56.5		24.5		56.5		24.5				
Max Q Clear Time (g_c+I1), s		35.6		7.8		30.9		14.0				
Green Ext Time (p_c), s		6.2		0.8		10.1		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	190	170	200	310	100	100	520	110	140	800	240
Future Volume (veh/h)	90	190	170	200	310	100	100	520	110	140	800	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	204	183	215	333	108	108	559	118	151	860	258
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	242	217	362	429	139	278	1094	488	392	1165	519
Arrive On Green	0.07	0.27	0.26	0.12	0.32	0.31	0.07	0.31	0.31	0.09	0.33	0.33
Sat Flow, veh/h	1781	909	815	1781	1353	439	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	97	0	387	215	0	441	108	559	118	151	860	258
Grp Sat Flow(s),veh/h/ln	1781	0	1724	1781	0	1791	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	0.0	15.4	5.9	0.0	16.2	2.9	9.4	4.0	4.1	15.6	9.5
Cycle Q Clear(g_c), s	2.8	0.0	15.4	5.9	0.0	16.2	2.9	9.4	4.0	4.1	15.6	9.5
Prop In Lane	1.00		0.47	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	0	459	362	0	569	278	1094	488	392	1165	519
V/C Ratio(X)	0.32	0.00	0.84	0.59	0.00	0.78	0.39	0.51	0.24	0.39	0.74	0.50
Avail Cap(c_a), veh/h	326	0	595	448	0	776	304	1348	601	469	1520	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	0.0	25.3	17.1	0.0	22.5	16.8	20.6	18.8	15.2	21.6	19.6
Incr Delay (d2), s/veh	0.6	0.0	8.5	1.6	0.0	3.4	0.9	0.4	0.3	0.6	1.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	7.0	2.4	0.0	6.9	1.2	3.7	1.4	1.6	6.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	33.8	18.6	0.0	25.9	17.7	21.0	19.0	15.8	23.0	20.3
LnGrp LOS	B	A	C	B	A	C	B	C	B	B	C	C
Approach Vol, veh/h		484			656			785			1269	
Approach Delay, s/veh		30.8			23.5			20.2			21.6	
Approach LOS		C			C			C			C	

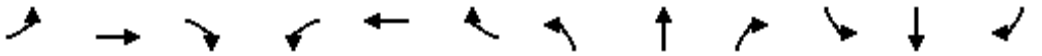
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	26.3	12.5	23.3	8.9	27.8	8.8	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.0	27.0	11.5	24.5	5.5	30.5	5.1	30.9
Max Q Clear Time (g_c+I1), s	6.1	11.4	7.9	17.4	4.9	17.6	4.8	18.2
Green Ext Time (p_c), s	0.1	3.8	0.2	1.4	0.0	5.7	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	510	50	280	550	130	110	510	190	220	810	140
Future Volume (veh/h)	90	510	50	280	550	130	110	510	190	220	810	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	580	57	318	625	148	125	580	216	250	920	159
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	775	76	322	651	552	190	1642	732	316	1400	242
Arrive On Green	0.07	0.24	0.22	0.18	0.35	0.35	0.46	0.46	0.46	0.46	0.46	0.45
Sat Flow, veh/h	1781	3269	321	1781	1870	1585	523	3554	1585	682	3030	523
Grp Volume(v), veh/h	102	315	322	318	625	148	125	580	216	250	539	540
Grp Sat Flow(s),veh/h/ln	1781	1777	1813	1781	1870	1585	523	1777	1585	682	1777	1776
Q Serve(g_s), s	5.6	16.4	16.5	17.8	32.7	6.7	22.6	10.5	8.5	35.7	23.5	23.6
Cycle Q Clear(g_c), s	5.6	16.4	16.5	17.8	32.7	6.7	46.2	10.5	8.5	46.2	23.5	23.6
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	125	421	430	322	651	552	190	1642	732	316	821	821
V/C Ratio(X)	0.82	0.75	0.75	0.99	0.96	0.27	0.66	0.35	0.29	0.79	0.66	0.66
Avail Cap(c_a), veh/h	125	421	430	322	651	552	190	1642	732	316	821	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	35.4	35.5	40.8	31.9	23.4	39.3	17.3	16.8	32.6	20.8	21.0
Incr Delay (d2), s/veh	31.2	7.2	7.2	46.2	25.7	0.3	7.9	0.1	0.2	12.9	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	7.8	8.0	11.8	18.9	2.5	3.5	4.2	3.1	7.0	9.8	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.1	42.6	42.7	87.0	57.6	23.7	47.2	17.4	17.0	45.5	22.7	22.9
LnGrp LOS	E	D	D	F	E	C	D	B	B	D	C	C
Approach Vol, veh/h		739			1091			921			1329	
Approach Delay, s/veh		47.4			61.6			21.4			27.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	38.8		50.2	22.1	27.7		50.2				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	6.5	33.3		44.7	17.6	22.2		44.7				
Max Q Clear Time (g_c+I1), s	7.6	34.7		48.2	19.8	18.5		48.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.4		0.0				

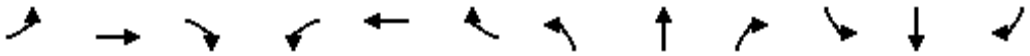
Intersection Summary												
HCM 6th Ctrl Delay			38.7									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	810	30	20	900	80	10	10	15	35	10	50
Future Volume (veh/h)	70	810	30	20	900	80	10	10	15	35	10	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	920	34	23	1023	91	11	11	17	40	11	57
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	1333	49	405	1259	112	114	77	85	140	32	95
Arrive On Green	0.74	0.74	0.74	0.74	0.74	0.74	0.12	0.12	0.11	0.12	0.12	0.11
Sat Flow, veh/h	506	1792	66	588	1693	151	283	665	732	462	274	823
Grp Volume(v), veh/h	80	0	954	23	0	1114	39	0	0	108	0	0
Grp Sat Flow(s),veh/h/ln	506	0	1858	588	0	1843	1680	0	0	1559	0	0
Q Serve(g_s), s	6.9	0.0	15.4	1.2	0.0	22.3	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	29.3	0.0	15.4	16.6	0.0	22.3	1.2	0.0	0.0	3.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.28		0.44	0.37		0.53
Lane Grp Cap(c), veh/h	304	0	1383	405	0	1371	275	0	0	267	0	0
V/C Ratio(X)	0.26	0.00	0.69	0.06	0.00	0.81	0.14	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	478	0	2020	607	0	2003	644	0	0	625	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.2	0.0	3.8	8.2	0.0	4.7	22.9	0.0	0.0	24.0	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.6	0.1	0.0	1.7	0.2	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.6	0.1	0.0	4.0	0.5	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	4.5	8.3	0.0	6.4	23.1	0.0	0.0	25.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1034			1137			39			108	
Approach Delay, s/veh		5.3			6.5			23.1			25.0	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.6		46.4		10.6		46.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		61.5		19.5		61.5				
Max Q Clear Time (g_c+I1), s		3.2		31.3		5.7		24.3				
Green Ext Time (p_c), s		0.1		10.7		0.4		13.9				

Intersection Summary												
HCM 6th Ctrl Delay			7.1									
HCM 6th LOS			A									



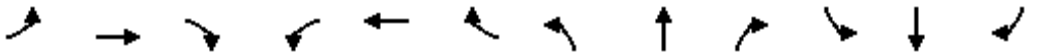
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	790	20	20	920	70	10	10	30	90	10	70
Future Volume (vph)	50	790	20	20	920	70	10	10	30	90	10	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1856		1652	3268		1770	1863	1583	1770	1618	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1856		1652	3268		1770	1863	1583	1770	1618	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	878	22	22	1022	78	11	11	33	100	11	78
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	30	0	68	0
Lane Group Flow (vph)	56	900	0	22	1096	0	11	11	3	100	21	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	4.0	50.6		1.6	48.2		6.1	6.1	6.1	10.6	10.6	
Effective Green, g (s)	5.0	52.6		2.6	50.2		7.1	7.1	7.1	11.6	11.6	
Actuated g/C Ratio	0.06	0.59		0.03	0.56		0.08	0.08	0.08	0.13	0.13	
Clearance Time (s)	5.0	6.0		5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	3.5		1.5	3.5		4.0	4.0	4.0	2.0	2.0	
Lane Grp Cap (vph)	98	1085		47	1824		139	147	125	228	208	
v/s Ratio Prot	c0.03	c0.48		0.01	0.34		c0.01	0.01		c0.06	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.57	0.83		0.47	0.60		0.08	0.07	0.02	0.44	0.10	
Uniform Delay, d1	41.4	15.0		43.0	13.2		38.4	38.4	38.2	36.1	34.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.9	5.5		2.7	0.6		0.3	0.3	0.1	0.5	0.1	
Delay (s)	46.3	20.5		45.6	13.8		38.7	38.7	38.3	36.6	34.6	
Level of Service	D	C		D	B		D	D	D	D	C	
Approach Delay (s)		22.0			14.4			38.4			35.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	640	200	270	730	30	200	230	290	120	450	80
Future Volume (veh/h)	70	640	200	270	730	30	200	230	290	120	450	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	703	220	297	802	33	220	253	319	132	495	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	746	233	267	1286	53	230	842	713	378	696	124
Arrive On Green	0.06	0.28	0.26	0.15	0.37	0.35	0.45	0.45	0.45	0.45	0.45	0.44
Sat Flow, veh/h	1781	2664	833	1781	3478	143	832	1870	1585	840	1546	275
Grp Volume(v), veh/h	77	469	454	297	410	425	220	253	319	132	0	583
Grp Sat Flow(s),veh/h/ln	1781	1777	1720	1781	1777	1845	832	1870	1585	840	0	1821
Q Serve(g_s), s	4.2	25.8	25.8	15.0	18.9	18.9	19.1	8.6	13.9	11.9	0.0	25.9
Cycle Q Clear(g_c), s	4.2	25.8	25.8	15.0	18.9	18.9	45.0	8.6	13.9	20.5	0.0	25.9
Prop In Lane	1.00		0.48	1.00		0.08	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	107	498	482	267	657	682	230	842	713	378	0	819
V/C Ratio(X)	0.72	0.94	0.94	1.11	0.62	0.62	0.95	0.30	0.45	0.35	0.00	0.71
Avail Cap(c_a), veh/h	135	498	482	267	657	682	230	842	713	378	0	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	35.2	35.6	42.5	25.8	25.9	43.1	17.5	18.9	24.0	0.0	22.4
Incr Delay (d2), s/veh	12.6	26.6	27.2	88.3	1.8	1.8	46.5	0.2	0.4	0.6	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	14.6	14.3	13.1	8.1	8.4	8.4	3.7	5.0	2.4	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	61.8	62.8	130.8	27.6	27.6	89.7	17.7	19.4	24.5	0.0	25.3
LnGrp LOS	E	E	E	F	C	C	F	B	B	C	A	C
Approach Vol, veh/h		1000			1132			792			715	
Approach Delay, s/veh		62.0			54.7			38.4			25.1	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	41.0		49.0	19.0	32.0		49.0				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	7.1	33.9		43.5	14.5	26.5		43.5				
Max Q Clear Time (g_c+I1), s	6.2	20.9		27.9	17.0	27.8		47.0				
Green Ext Time (p_c), s	0.0	4.4		4.3	0.0	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			47.4									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	930	10	10	860	70	10	0	10	190	0	160
Future Volume (veh/h)	80	930	10	10	860	70	10	0	10	190	0	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	83	969	10	10	896	73	10	0	10	198	0	167
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	364	1612	17	311	1314	107	292	31	225	338	17	213
Arrive On Green	0.07	0.45	0.44	0.02	0.39	0.39	0.31	0.00	0.30	0.31	0.00	0.30
Sat Flow, veh/h	1781	3603	37	1781	3327	271	620	100	720	758	53	684
Grp Volume(v), veh/h	83	478	501	10	478	491	20	0	0	365	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1822	1440	0	0	1496	0	0
Q Serve(g_s), s	1.4	11.1	11.1	0.2	12.2	12.2	0.0	0.0	0.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	1.4	11.1	11.1	0.2	12.2	12.2	0.4	0.0	0.0	12.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.15	0.50		0.50	0.54		0.46
Lane Grp Cap(c), veh/h	364	795	834	311	702	719	548	0	0	568	0	0
V/C Ratio(X)	0.23	0.60	0.60	0.03	0.68	0.68	0.04	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	491	1335	1400	460	1264	1296	1136	0	0	1200	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.4	11.5	11.5	10.0	13.7	13.8	13.2	0.0	0.0	17.2	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.7	0.7	0.0	1.2	1.2	0.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.8	4.0	0.1	4.4	4.5	0.2	0.0	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.8	12.2	12.2	10.1	14.9	14.9	13.3	0.0	0.0	18.4	0.0	0.0
LnGrp LOS	A	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1062			979			20			365	
Approach Delay, s/veh		12.0			14.9			13.3			18.4	
Approach LOS		B			B			B			B	

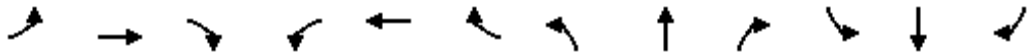
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.1	5.2	28.5		21.1	8.1	25.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		40.0	5.3	40.7		40.0	7.5	38.5				
Max Q Clear Time (g_c+I1), s		2.4	2.2	13.1		14.1	3.4	14.2				
Green Ext Time (p_c), s		0.1	0.0	7.2		2.5	0.1	6.9				

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	650	280	150	560	80	120	690	140	130	930	260
Future Volume (veh/h)	240	650	280	150	560	80	120	690	140	130	930	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	253	684	295	158	589	84	126	726	147	137	979	274
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	1496	759	178	1480	749	200	1143	591	100	1137	596
Arrive On Green	0.06	0.42	0.42	0.05	0.42	0.42	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	253	684	295	158	589	84	126	726	147	137	979	274
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.0	14.7	12.7	4.9	12.4	3.2	3.8	18.6	6.8	6.0	27.6	13.9
Cycle Q Clear(g_c), s	6.0	14.7	12.7	4.9	12.4	3.2	3.8	18.6	6.8	6.0	27.6	13.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	1496	759	178	1480	749	200	1143	591	100	1137	596
V/C Ratio(X)	1.30	0.46	0.39	0.89	0.40	0.11	0.63	0.64	0.25	1.37	0.86	0.46
Avail Cap(c_a), veh/h	194	1496	759	178	1480	749	213	1247	638	100	1227	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	22.2	17.8	50.4	21.8	15.7	49.2	30.9	23.1	50.4	34.1	25.2
Incr Delay (d2), s/veh	169.0	0.2	0.3	37.9	0.8	0.3	5.3	0.9	0.2	217.5	6.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.1	4.6	3.0	5.3	1.2	1.8	8.0	2.6	8.7	12.6	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.5	22.4	18.2	88.3	22.6	16.0	54.6	31.8	23.4	267.9	40.2	25.7
LnGrp LOS	F	C	B	F	C	B	D	C	C	F	D	C
Approach Vol, veh/h		1232			831			999			1390	
Approach Delay, s/veh		61.8			34.4			33.5			59.8	
Approach LOS		E			C			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	48.5	10.0	38.4	9.5	49.0	10.2	38.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	44.0	5.5	37.0	5.0	44.5	6.1	36.4
Max Q Clear Time (g_c+I1), s	8.0	14.4	8.0	20.6	6.9	16.7	5.8	29.6
Green Ext Time (p_c), s	0.0	4.7	0.0	5.1	0.0	6.4	0.0	4.1

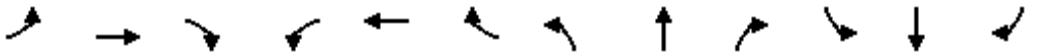
Intersection Summary	
HCM 6th Ctrl Delay	49.7
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	360	0	200	380	640	0	0	990	140
Future Volume (vph)	0	0	0	360	0	200	380	640	0	0	990	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			5.0	
Lane Util. Factor				0.95	0.95		1.00	0.95			0.95	
Frt				1.00	0.89		1.00	1.00			0.98	
Flt Protected				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1554		1770	3539			3474	
Flt Permitted				0.95	0.99		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1554		1770	3539			3474	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	379	0	211	400	674	0	0	1042	147
RTOR Reduction (vph)	0	0	0	0	100	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	303	187	0	400	674	0	0	1178	0
Turn Type				Prot	NA		Prot	NA			NA	
Protected Phases				8			5	2				
Permitted Phases					8						6	
Actuated Green, G (s)				19.9	19.9		23.5	64.4			35.9	
Effective Green, g (s)				20.4	20.4		23.5	64.9			36.4	
Actuated g/C Ratio				0.22	0.22		0.25	0.70			0.39	
Clearance Time (s)				4.5	4.5		4.0	4.5			5.5	
Vehicle Extension (s)				3.0	3.0		2.0	2.0			2.0	
Lane Grp Cap (vph)				367	339		445	2461			1355	
v/s Ratio Prot				c0.18			c0.23	0.19				
v/s Ratio Perm					0.12						c0.34	
v/c Ratio				0.83	0.55		0.90	0.27			0.87	
Uniform Delay, d1				34.8	32.4		33.8	5.3			26.3	
Progression Factor				1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2				14.0	1.9		20.0	0.0			6.0	
Delay (s)				48.8	34.3		53.8	5.4			32.3	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			41.7			23.4			32.3	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

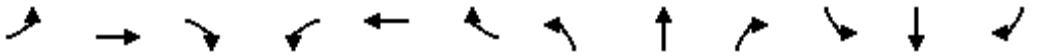
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	20	90	100	10	20	120	1050	190	10	800	20
Future Volume (veh/h)	20	20	90	100	10	20	120	1050	190	10	800	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	21	95	105	11	21	126	1105	200	11	842	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	48	158	204	20	27	454	1193	216	168	1406	35
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.77	0.77	0.77	0.77	0.77	0.77
Sat Flow, veh/h	167	358	1188	974	151	204	641	1541	279	422	1817	45
Grp Volume(v), veh/h	137	0	0	137	0	0	126	0	1305	11	0	863
Grp Sat Flow(s),veh/h/ln	1714	0	0	1329	0	0	641	0	1820	422	0	1862
Q Serve(g_s), s	0.0	0.0	0.0	2.2	0.0	0.0	8.9	0.0	49.4	1.8	0.0	16.8
Cycle Q Clear(g_c), s	6.5	0.0	0.0	8.6	0.0	0.0	25.7	0.0	49.4	51.3	0.0	16.8
Prop In Lane	0.15		0.69	0.77		0.15	1.00		0.15	1.00		0.02
Lane Grp Cap(c), veh/h	277	0	0	251	0	0	454	0	1408	168	0	1441
V/C Ratio(X)	0.50	0.00	0.00	0.55	0.00	0.00	0.28	0.00	0.93	0.07	0.00	0.60
Avail Cap(c_a), veh/h	406	0	0	361	0	0	505	0	1552	201	0	1588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.1	0.0	0.0	9.5	0.0	7.8	28.3	0.0	4.1
Incr Delay (d2), s/veh	1.4	0.0	0.0	1.8	0.0	0.0	0.3	0.0	9.4	0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	2.9	0.0	0.0	1.2	0.0	15.4	0.2	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	0.0	0.0	38.0	0.0	0.0	9.9	0.0	17.2	28.5	0.0	4.6
LnGrp LOS	D	A	A	D	A	A	A	A	B	C	A	A
Approach Vol, veh/h		137			137			1431			874	
Approach Delay, s/veh		36.8			38.0			16.6			4.9	
Approach LOS		D			D			B			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.7		15.5		70.7		15.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		73.0		18.0		73.0		18.0				
Max Q Clear Time (g_c+I1), s		51.4		8.5		53.3		10.6				
Green Ext Time (p_c), s		14.8		0.4		6.8		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	410	190	300	380	220	200	880	170	140	710	140
Future Volume (veh/h)	260	410	190	300	380	220	200	880	170	140	710	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	432	200	316	400	232	211	926	179	147	747	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	405	187	327	394	228	283	1018	454	209	907	405
Arrive On Green	0.12	0.33	0.33	0.14	0.35	0.35	0.09	0.29	0.29	0.06	0.26	0.26
Sat Flow, veh/h	1781	1210	560	1781	1110	644	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	274	0	632	316	0	632	211	926	179	147	747	147
Grp Sat Flow(s),veh/h/ln	1781	0	1770	1781	0	1754	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.6	0.0	30.0	11.8	0.0	31.8	7.7	22.6	8.1	5.5	17.8	6.8
Cycle Q Clear(g_c), s	9.6	0.0	30.0	11.8	0.0	31.8	7.7	22.6	8.1	5.5	17.8	6.8
Prop In Lane	1.00		0.32	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	592	327	0	622	283	1018	454	209	907	405
V/C Ratio(X)	0.94	0.00	1.07	0.97	0.00	1.02	0.75	0.91	0.39	0.70	0.82	0.36
Avail Cap(c_a), veh/h	291	0	592	327	0	622	283	1030	459	209	919	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	29.9	24.9	0.0	29.0	23.7	30.9	25.7	25.5	31.5	27.4
Incr Delay (d2), s/veh	37.6	0.0	56.4	41.0	0.0	40.2	10.4	11.6	0.6	10.1	6.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	21.5	8.4	0.0	19.7	3.9	11.0	3.1	2.8	8.2	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.0	86.3	65.9	0.0	69.2	34.1	42.5	26.3	35.5	37.6	28.0
LnGrp LOS	E	A	F	E	A	F	C	D	C	D	D	C
Approach Vol, veh/h		906			948			1316			1041	
Approach Delay, s/veh		78.6			68.1			39.0			35.9	
Approach LOS		E			E			D			D	

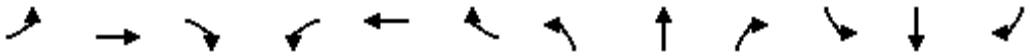
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	29.7	16.4	34.0	12.4	26.9	14.6	35.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	25.5	11.9	29.5	7.9	22.7	10.1	31.3
Max Q Clear Time (g_c+I1), s	7.5	24.6	13.8	32.0	9.7	19.8	11.6	33.8
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	650	40	330	570	260	110	830	470	260	820	120
Future Volume (veh/h)	160	650	40	330	570	260	110	830	470	260	820	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	684	42	347	600	274	116	874	495	274	863	126
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	765	47	282	577	489	248	1836	819	202	1607	235
Arrive On Green	0.08	0.22	0.21	0.16	0.31	0.31	0.52	0.52	0.52	0.52	0.52	0.50
Sat Flow, veh/h	1781	3401	209	1781	1870	1585	569	3554	1585	397	3111	454
Grp Volume(v), veh/h	168	357	369	347	600	274	116	874	495	274	493	496
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1781	1870	1585	569	1777	1585	397	1777	1789
Q Serve(g_s), s	9.0	23.4	23.4	19.0	37.0	17.3	20.6	18.9	26.3	43.1	22.3	22.4
Cycle Q Clear(g_c), s	9.0	23.4	23.4	19.0	37.0	17.3	42.9	18.9	26.3	62.0	22.3	22.4
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	134	400	412	282	577	489	248	1836	819	202	918	924
V/C Ratio(X)	1.26	0.89	0.89	1.23	1.04	0.56	0.47	0.48	0.60	1.35	0.54	0.54
Avail Cap(c_a), veh/h	134	400	412	282	577	489	248	1836	819	202	918	924
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	45.1	45.2	50.5	41.5	34.7	33.8	18.6	20.4	44.8	19.4	19.5
Incr Delay (d2), s/veh	162.7	21.6	21.3	130.7	48.4	1.5	1.4	0.2	1.3	187.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	12.7	13.0	18.7	24.6	6.9	2.9	7.7	9.8	16.7	9.2	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	218.2	66.7	66.5	181.2	89.9	36.2	35.2	18.8	21.6	232.7	20.0	20.2
LnGrp LOS	F	E	E	F	F	D	D	B	C	F	C	C
Approach Vol, veh/h		894			1221			1485			1263	
Approach Delay, s/veh		95.1			103.8			21.0			66.2	
Approach LOS		F			F			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	41.0		66.0	23.0	31.0		66.0				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	8.5	35.5		60.5	18.5	25.5		60.5				
Max Q Clear Time (g_c+I1), s	11.0	39.0		44.9	21.0	25.4		64.0				
Green Ext Time (p_c), s	0.0	0.0		8.3	0.0	0.0		0.0				

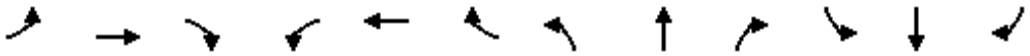
Intersection Summary			
HCM 6th Ctrl Delay		67.2	
HCM 6th LOS		E	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1240	30	50	1100	110	20	10	30	40	10	40
Future Volume (veh/h)	100	1240	30	50	1100	110	20	10	30	40	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	1305	32	53	1158	116	21	11	32	42	11	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	1482	36	228	1363	137	93	39	75	117	25	63
Arrive On Green	0.82	0.82	0.81	0.82	0.82	0.81	0.09	0.09	0.08	0.09	0.09	0.08
Sat Flow, veh/h	434	1818	45	409	1673	168	404	441	845	618	285	716
Grp Volume(v), veh/h	105	0	1337	53	0	1274	64	0	0	95	0	0
Grp Sat Flow(s),veh/h/ln	434	0	1862	409	0	1840	1691	0	0	1619	0	0
Q Serve(g_s), s	15.9	0.0	39.0	8.1	0.0	34.5	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	50.4	0.0	39.0	47.0	0.0	34.5	2.9	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.09	0.33		0.50	0.44		0.44
Lane Grp Cap(c), veh/h	260	0	1518	228	0	1500	207	0	0	206	0	0
V/C Ratio(X)	0.40	0.00	0.88	0.23	0.00	0.85	0.31	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	289	0	1642	255	0	1623	424	0	0	418	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	0.0	5.0	20.4	0.0	4.6	35.8	0.0	0.0	36.5	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	5.6	0.5	0.0	4.2	0.8	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	8.9	0.8	0.0	7.5	1.3	0.0	0.0	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	0.0	10.6	21.0	0.0	8.8	36.7	0.0	0.0	38.1	0.0	0.0
LnGrp LOS	C	A	B	C	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1442			1327			64			95	
Approach Delay, s/veh		11.4			9.3			36.7			38.1	
Approach LOS		B			A			D			D	

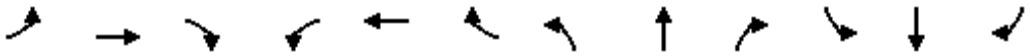
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.3		71.5		11.3		71.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+I1), s		4.9		52.4		6.5		49.0				
Green Ext Time (p_c), s		0.2		14.6		0.3		14.8				

Intersection Summary												
HCM 6th Ctrl Delay			11.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1190	30	50	1200	130	10	10	20	80	10	50
Future Volume (vph)	100	1190	30	50	1200	130	10	10	20	80	10	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1856		1652	3255		1770	1863	1583	1770	1631	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1856		1652	3255		1770	1863	1583	1770	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1253	32	53	1263	137	11	11	21	84	11	53
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	20	0	48	0
Lane Group Flow (vph)	105	1285	0	53	1396	0	11	11	1	84	16	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	9.8	79.3		5.1	74.6		6.7	6.7	6.7	11.3	11.3	
Effective Green, g (s)	10.8	81.3		6.1	76.6		7.7	7.7	7.7	12.3	12.3	
Actuated g/C Ratio	0.09	0.66		0.05	0.62		0.06	0.06	0.06	0.10	0.10	
Clearance Time (s)	5.0	6.0		5.0	6.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	1.5	3.5		1.5	3.5		4.0	4.0	4.0	2.0	2.0	
Lane Grp Cap (vph)	154	1222		81	2020		110	116	98	176	162	
v/s Ratio Prot	c0.06	c0.69		0.03	0.43		c0.01	0.01		c0.05	0.01	
v/s Ratio Perm									0.00			
v/c Ratio	0.68	1.05		0.65	0.69		0.10	0.09	0.01	0.48	0.10	
Uniform Delay, d1	54.6	21.1		57.6	15.5		54.6	54.6	54.3	52.5	50.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.5	40.3		13.5	1.1		0.5	0.5	0.1	0.7	0.1	
Delay (s)	64.1	61.4		71.2	16.6		55.1	55.1	54.4	53.3	50.6	
Level of Service	E	E		E	B		E	E	D	D	D	
Approach Delay (s)		61.6			18.6			54.7			52.1	
Approach LOS		E			B			D			D	

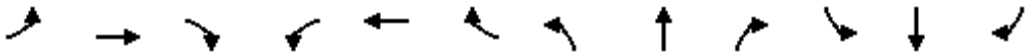
Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	123.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	990	220	230	1030	100	270	470	440	110	280	80
Future Volume (veh/h)	140	990	220	230	1030	100	270	470	440	110	280	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	1042	232	242	1084	105	284	495	463	116	295	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	1060	235	252	1333	129	290	733	621	161	548	156
Arrive On Green	0.10	0.37	0.35	0.14	0.41	0.39	0.39	0.39	0.39	0.39	0.39	0.38
Sat Flow, veh/h	1781	2891	641	1781	3273	317	1004	1870	1585	586	1400	399
Grp Volume(v), veh/h	147	639	635	242	588	601	284	495	463	116	0	379
Grp Sat Flow(s),veh/h/ln	1781	1777	1755	1781	1777	1813	1004	1870	1585	586	0	1799
Q Serve(g_s), s	9.7	42.7	43.1	16.2	35.2	35.3	27.5	26.3	30.1	20.7	0.0	19.5
Cycle Q Clear(g_c), s	9.7	42.7	43.1	16.2	35.2	35.3	47.0	26.3	30.1	47.0	0.0	19.5
Prop In Lane	1.00		0.37	1.00		0.17	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	180	652	643	252	724	739	290	733	621	161	0	704
V/C Ratio(X)	0.82	0.98	0.99	0.96	0.81	0.81	0.98	0.68	0.75	0.72	0.00	0.54
Avail Cap(c_a), veh/h	181	652	643	252	724	739	290	733	621	161	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.9	37.6	38.0	51.2	31.5	31.6	48.9	30.2	31.4	51.0	0.0	28.3
Incr Delay (d2), s/veh	24.3	30.4	32.0	45.2	7.0	7.0	47.3	2.5	4.9	14.4	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	23.7	23.9	10.4	16.2	16.6	12.4	12.2	12.2	4.2	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	67.9	70.0	96.4	38.5	38.6	96.2	32.7	36.3	65.4	0.0	29.1
LnGrp LOS	E	E	E	F	D	D	F	C	D	E	A	C
Approach Vol, veh/h		1421			1431			1242			495	
Approach Delay, s/veh		69.8			48.3			48.5			37.6	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.1	52.9		51.0	21.0	48.0		51.0				
Change Period (Y+Rc), s	4.5	5.5		5.5	4.5	5.5		5.5				
Max Green Setting (Gmax), s	11.7	47.3		45.5	16.5	42.5		45.5				
Max Q Clear Time (g_c+I1), s	11.7	37.3		49.0	18.2	45.1		49.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			53.9									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	1190	10	10	1210	180	0	10	10	120	0	150
Future Volume (veh/h)	300	1190	10	10	1210	180	0	10	10	120	0	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	316	1253	11	11	1274	189	0	11	11	126	0	158
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	375	2163	19	300	1519	224	0	191	191	204	13	187
Arrive On Green	0.13	0.60	0.59	0.02	0.49	0.48	0.00	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3610	32	1781	3107	458	0	858	858	609	60	839
Grp Volume(v), veh/h	316	617	647	11	725	738	0	0	22	284	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1865	1781	1777	1788	0	0	1716	1508	0	0
Q Serve(g_s), s	6.9	16.2	16.2	0.2	26.7	27.3	0.0	0.0	0.8	12.3	0.0	0.0
Cycle Q Clear(g_c), s	6.9	16.2	16.2	0.2	26.7	27.3	0.0	0.0	0.8	13.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.26	0.00		0.50	0.44		0.56
Lane Grp Cap(c), veh/h	375	1065	1117	300	869	874	0	0	381	404	0	0
V/C Ratio(X)	0.84	0.58	0.58	0.04	0.83	0.84	0.00	0.00	0.06	0.70	0.00	0.00
Avail Cap(c_a), veh/h	517	1204	1263	396	960	966	0	0	475	485	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.3	9.3	9.3	9.6	16.7	16.9	0.0	0.0	23.3	28.3	0.0	0.0
Incr Delay (d2), s/veh	9.0	0.5	0.5	0.0	6.0	6.4	0.0	0.0	0.1	3.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.4	5.7	0.1	11.1	11.5	0.0	0.0	0.3	5.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	9.9	9.9	9.7	22.7	23.4	0.0	0.0	23.4	31.9	0.0	0.0
LnGrp LOS	C	A	A	A	C	C	A	A	C	C	A	A
Approach Vol, veh/h		1580			1474			22			284	
Approach Delay, s/veh		13.1			23.0			23.4			31.9	
Approach LOS		B			C			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.9	5.5	49.5		20.9	13.9	41.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	5.1	50.9		20.5	15.5	40.5				
Max Q Clear Time (g_c+I1), s		2.8	2.2	18.2		15.7	8.9	29.3				
Green Ext Time (p_c), s		0.0	0.0	10.9		0.7	0.5	7.3				

Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									

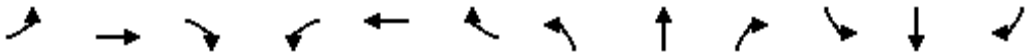
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	690	210	270	1120	90	180	820	170	100	920	170
Future Volume (veh/h)	450	690	210	270	1120	90	180	820	170	100	920	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	474	726	221	284	1179	95	189	863	179	105	968	179
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	472	1380	781	360	1265	683	186	1063	639	134	959	645
Arrive On Green	0.14	0.39	0.39	0.10	0.36	0.36	0.10	0.30	0.30	0.07	0.27	0.27
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	474	726	221	284	1179	95	189	863	179	105	968	179
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	16.4	18.8	9.9	9.6	38.4	4.4	12.5	27.0	9.1	7.0	32.4	9.1
Cycle Q Clear(g_c), s	16.4	18.8	9.9	9.6	38.4	4.4	12.5	27.0	9.1	7.0	32.4	9.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	472	1380	781	360	1265	683	186	1063	639	134	959	645
V/C Ratio(X)	1.00	0.53	0.28	0.79	0.93	0.14	1.02	0.81	0.28	0.79	1.01	0.28
Avail Cap(c_a), veh/h	472	1380	781	461	1265	683	186	1063	639	134	959	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	28.2	17.9	52.5	37.3	20.7	53.8	38.9	24.1	54.6	43.8	23.8
Incr Delay (d2), s/veh	42.3	0.4	0.2	7.0	13.6	0.4	71.0	4.9	0.2	25.9	31.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	8.0	3.6	4.5	18.8	1.7	9.3	12.4	3.5	4.1	18.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.1	28.6	18.1	59.5	50.8	21.1	124.7	43.8	24.3	80.5	75.0	24.0
LnGrp LOS	F	C	B	E	D	C	F	D	C	F	F	C
Approach Vol, veh/h		1421			1558			1231			1252	
Approach Delay, s/veh		48.8			50.6			53.4			68.2	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.4	46.7	13.0	39.9	16.5	50.6	16.5	36.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.9	42.2	8.5	35.4	15.5	42.6	12.0	31.9
Max Q Clear Time (g_c+I1), s	18.4	40.4	9.0	29.0	11.6	20.8	14.5	34.4
Green Ext Time (p_c), s	0.0	1.3	0.0	3.4	0.4	6.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	650	0	180	340	1270	0	0	1100	170
Future Volume (vph)	0	0	0	650	0	180	340	1270	0	0	1100	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			5.0	
Lane Util. Factor				0.95	0.95		0.97	0.95			0.95	
Frt				1.00	0.93		1.00	1.00			0.98	
Flt Protected				0.95	0.97		0.95	1.00			1.00	
Satd. Flow (prot)				1681	1608		3433	3539			3468	
Flt Permitted				0.95	0.97		0.95	1.00			1.00	
Satd. Flow (perm)				1681	1608		3433	3539			3468	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	684	0	189	358	1337	0	0	1158	179
RTOR Reduction (vph)	0	0	0	0	49	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	445	379	0	358	1337	0	0	1324	0
Turn Type				custom	NA		Prot	NA			NA	
Protected Phases							5	2			6	
Permitted Phases				8	8							
Actuated Green, G (s)				28.7	28.7		11.7	56.4			39.7	
Effective Green, g (s)				29.2	29.2		11.7	56.9			40.2	
Actuated g/C Ratio				0.31	0.31		0.12	0.60			0.43	
Clearance Time (s)				4.5	4.5		4.0	4.5			5.5	
Vehicle Extension (s)				3.0	3.0		2.0	2.0			2.0	
Lane Grp Cap (vph)				521	498		426	2139			1481	
v/s Ratio Prot							c0.10	0.38			c0.38	
v/s Ratio Perm				c0.26	0.24							
v/c Ratio				0.85	0.76		0.84	0.63			0.89	
Uniform Delay, d1				30.5	29.3		40.3	11.8			25.0	
Progression Factor				1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2				12.9	6.8		13.4	0.4			7.2	
Delay (s)				43.3	36.1		53.6	12.2			32.1	
Level of Service				D	D		D	B			C	
Approach Delay (s)		0.0			39.8			21.0			32.1	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

SIDRA ANALYSIS

LANE LEVEL OF SERVICE

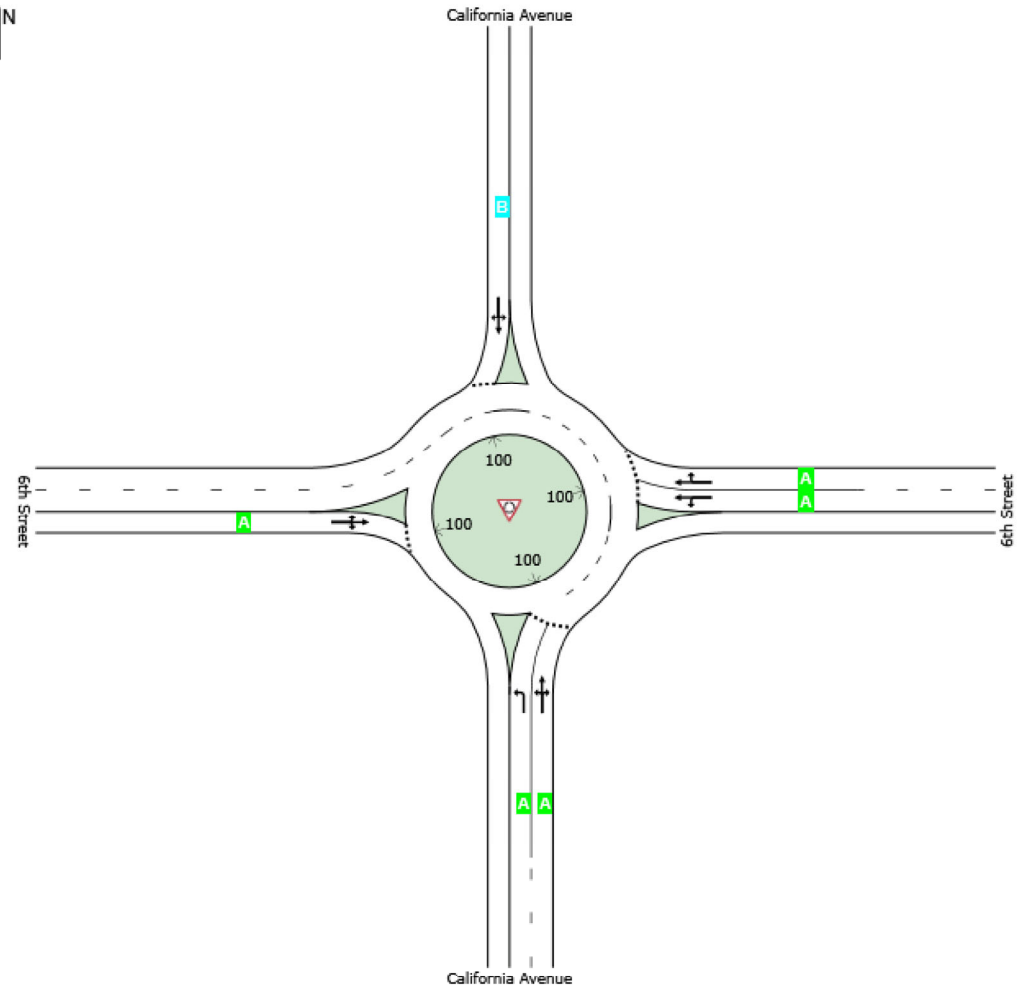
Lane Level of Service

Site: 3 [California Ave/6th St - EX-PP AM]

Beaumont 6th Street Analysis
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 3 [California Ave/6th St - EX-PP AM]

Beaumont 6th Street Analysis
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: California Avenue											
3	L2	500	3.0	0.359	7.7	LOS A	1.7	43.3	0.55	0.49	31.3
8	T1	98	3.0	0.359	7.7	LOS A	1.7	43.3	0.55	0.49	32.1
18	R2	87	3.0	0.359	7.7	LOS A	1.7	43.3	0.55	0.49	31.3
Approach		685	3.0	0.359	7.7	LOS A	1.7	43.3	0.55	0.49	31.4
East: 6th Street											
1	L2	141	3.0	0.359	9.4	LOS A	1.6	41.3	0.63	0.65	31.1
6	T1	380	3.0	0.359	8.9	LOS A	1.6	41.3	0.61	0.64	32.1
16	R2	33	3.0	0.359	8.7	LOS A	1.6	40.5	0.61	0.63	31.7
Approach		554	3.0	0.359	9.0	LOS A	1.6	41.3	0.62	0.64	31.9
North: California Avenue											
7	L2	76	3.0	0.424	13.1	LOS B	1.9	49.7	0.71	0.80	30.0
4	T1	152	3.0	0.424	13.1	LOS B	1.9	49.7	0.71	0.80	30.1
14	R2	11	3.0	0.424	13.1	LOS B	1.9	49.7	0.71	0.80	29.4
Approach		239	3.0	0.424	13.1	LOS B	1.9	49.7	0.71	0.80	30.0
West: 6th Street											
5	L2	11	3.0	0.463	9.7	LOS A	2.9	74.6	0.64	0.61	32.0
2	T1	305	3.0	0.463	9.7	LOS A	2.9	74.6	0.64	0.61	32.1
12	R2	105	3.0	0.463	9.7	LOS A	2.9	74.6	0.64	0.61	31.4
Approach		421	3.0	0.463	9.7	LOS A	2.9	74.6	0.64	0.61	31.9
All Vehicles		1899	3.0	0.463	9.2	LOS A	2.9	74.6	0.61	0.60	31.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

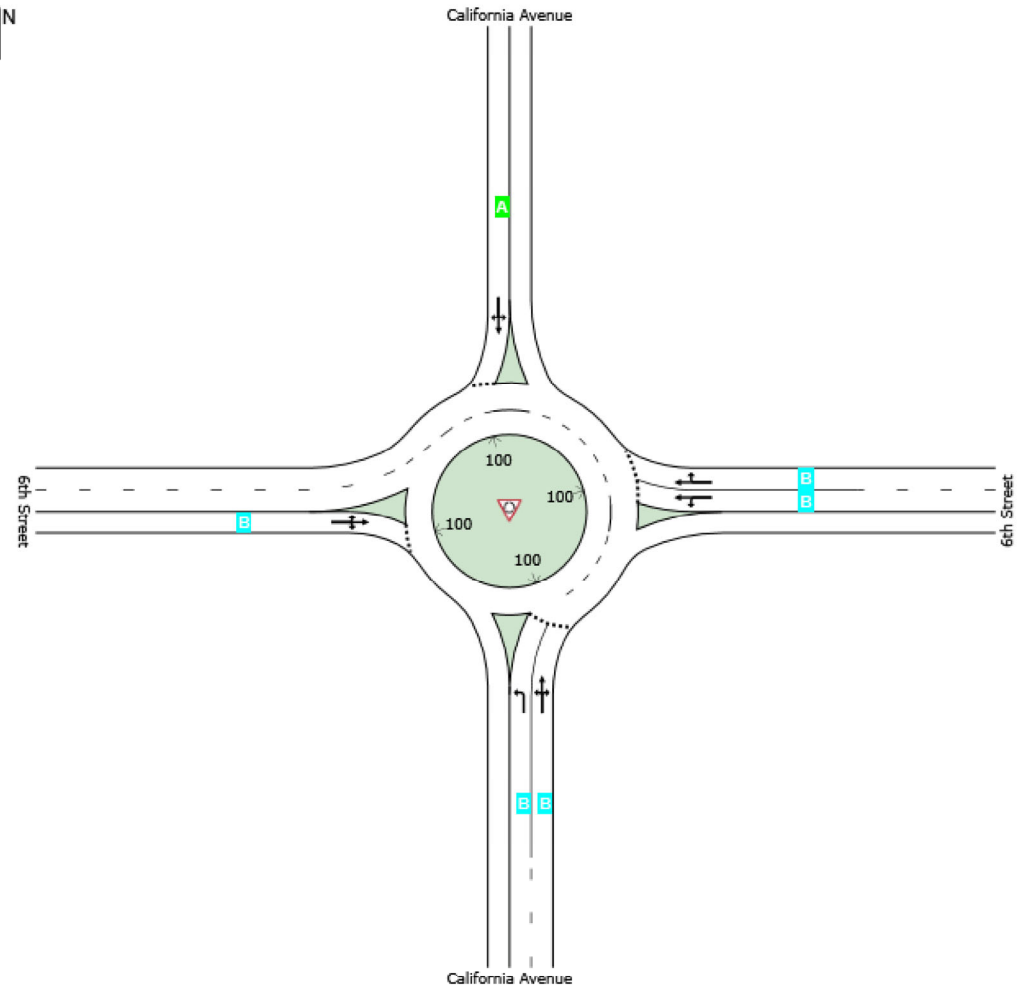
Lane Level of Service

Site: 3 [California Ave/6th St - EX-PP PM]

Beaumont 6th Street Analysis
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	B	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 3 [California Ave/6th St - EX-PP PM]

Beaumont 6th Street Analysis
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: California Avenue											
3	L2	565	3.0	0.469	10.2	LOS B	2.9	74.7	0.66	0.73	30.3
8	T1	109	3.0	0.469	10.2	LOS B	2.9	74.7	0.66	0.73	31.1
18	R2	130	3.0	0.469	10.2	LOS B	2.9	74.7	0.66	0.73	30.3
Approach		804	3.0	0.469	10.2	LOS B	2.9	74.7	0.66	0.73	30.4
East: 6th Street											
1	L2	98	3.0	0.414	11.0	LOS B	2.1	53.5	0.67	0.74	30.8
6	T1	446	3.0	0.414	10.5	LOS B	2.1	53.5	0.66	0.73	31.5
16	R2	54	3.0	0.414	10.2	LOS B	2.1	53.4	0.65	0.72	31.1
Approach		598	3.0	0.414	10.6	LOS B	2.1	53.5	0.66	0.73	31.3
North: California Avenue											
7	L2	33	3.0	0.208	9.7	LOS A	0.7	18.1	0.67	0.67	31.5
4	T1	65	3.0	0.208	9.7	LOS A	0.7	18.1	0.67	0.67	31.5
14	R2	11	3.0	0.208	9.7	LOS A	0.7	18.1	0.67	0.67	30.8
Approach		109	3.0	0.208	9.7	LOS A	0.7	18.1	0.67	0.67	31.4
West: 6th Street											
5	L2	11	3.0	0.598	11.1	LOS B	4.6	116.9	0.61	0.45	31.4
2	T1	463	3.0	0.598	11.1	LOS B	4.6	116.9	0.61	0.45	31.5
12	R2	179	3.0	0.598	11.1	LOS B	4.6	116.9	0.61	0.45	30.8
Approach		653	3.0	0.598	11.1	LOS B	4.6	116.9	0.61	0.45	31.3
All Vehicles		2164	3.0	0.598	10.5	LOS B	4.6	116.9	0.64	0.64	31.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LANE LEVEL OF SERVICE

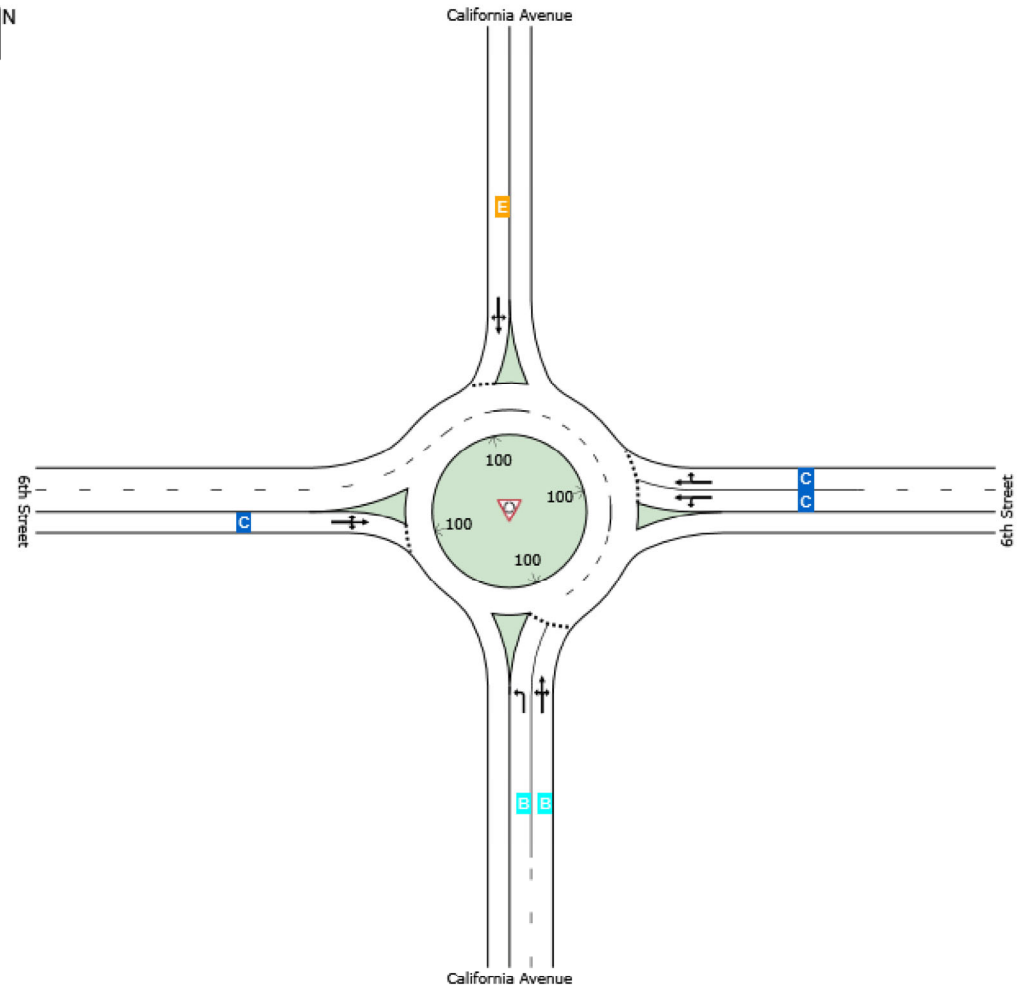
Lane Level of Service

Site: 3 [California Ave/6th St - FY AM]

Beaumont 6th Street Analysis
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	E	C	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 3 [California Ave/6th St - FY AM]

Beaumont 6th Street Analysis
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: California Avenue											
3	L2	772	3.0	0.622	13.6	LOS B	6.1	155.1	0.74	0.94	29.0
8	T1	98	3.0	0.622	13.6	LOS B	6.1	155.1	0.74	0.94	29.7
18	R2	239	3.0	0.622	13.6	LOS B	6.1	155.1	0.74	0.94	29.0
Approach		1109	3.0	0.622	13.6	LOS B	6.1	155.1	0.74	0.94	29.0
East: 6th Street											
1	L2	348	3.0	0.720	24.5	LOS C	5.8	149.5	0.83	1.12	25.5
6	T1	500	3.0	0.720	22.7	LOS C	6.1	155.2	0.83	1.12	27.0
16	R2	22	3.0	0.720	22.4	LOS C	6.1	155.2	0.83	1.12	26.6
Approach		870	3.0	0.720	23.4	LOS C	6.1	155.2	0.83	1.12	26.3
North: California Avenue											
7	L2	87	3.0	0.814	48.5	LOS E	5.2	134.0	0.94	1.30	20.5
4	T1	174	3.0	0.814	48.5	LOS E	5.2	134.0	0.94	1.30	20.5
14	R2	11	3.0	0.814	48.5	LOS E	5.2	134.0	0.94	1.30	20.2
Approach		272	3.0	0.814	48.5	LOS E	5.2	134.0	0.94	1.30	20.5
West: 6th Street											
5	L2	11	3.0	0.685	18.8	LOS C	6.8	173.3	0.84	1.11	28.4
2	T1	368	3.0	0.685	18.8	LOS C	6.8	173.3	0.84	1.11	28.4
12	R2	105	3.0	0.685	18.8	LOS C	6.8	173.3	0.84	1.11	27.8
Approach		484	3.0	0.685	18.8	LOS C	6.8	173.3	0.84	1.11	28.3
All Vehicles		2734	3.0	0.814	21.1	LOS C	6.8	173.3	0.81	1.06	26.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE LEVEL OF SERVICE

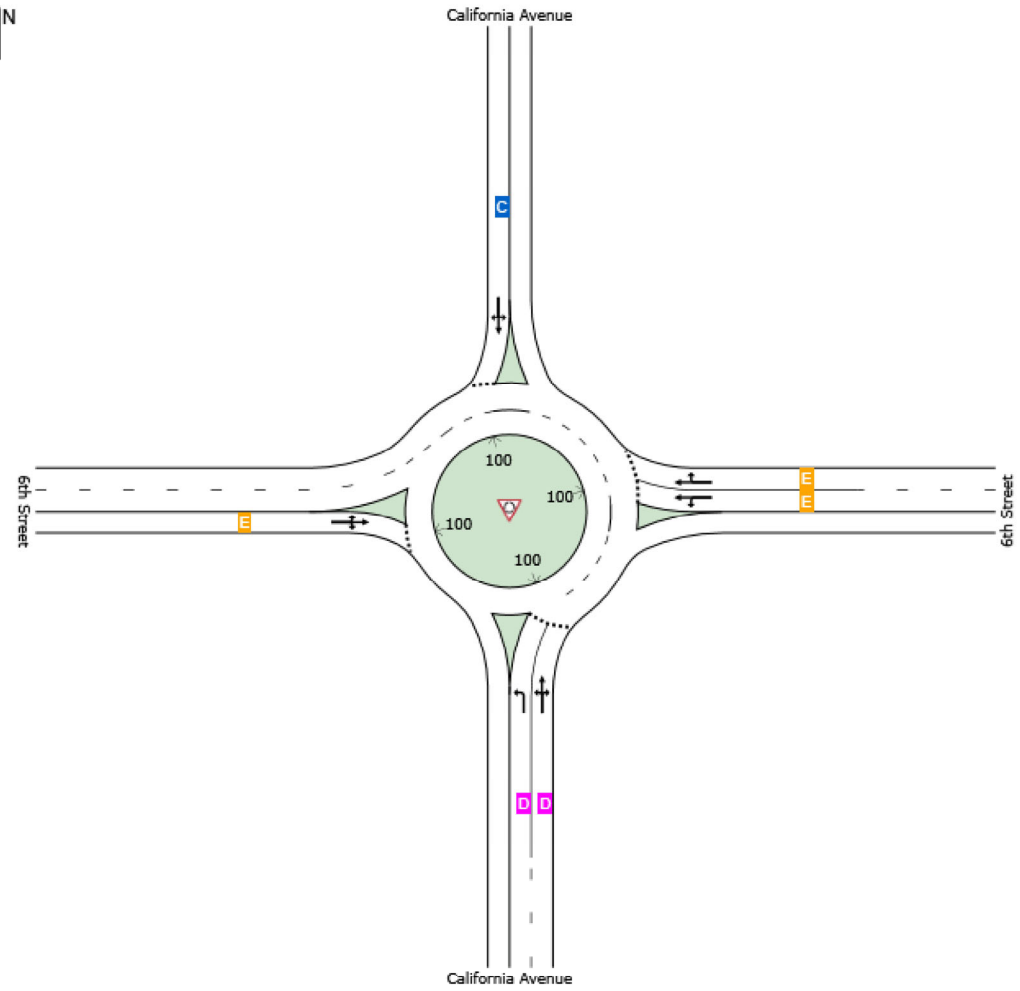
Lane Level of Service

Site: 3 [California Ave/6th St - FY PM]

Beaumont 6th Street Analysis
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	D	E	C	E	D



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
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Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

MOVEMENT SUMMARY

Site: 3 [California Ave/6th St - FY PM]

Beaumont 6th Street Analysis
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: California Avenue											
3	L2	891	3.0	0.849	27.0	LOS D	16.2	415.4	0.97	1.53	24.7
8	T1	152	3.0	0.849	27.0	LOS D	16.2	415.4	0.97	1.53	25.4
18	R2	413	3.0	0.849	27.0	LOS D	16.2	415.4	0.97	1.53	24.9
Approach		1457	3.0	0.849	27.0	LOS D	16.2	415.4	0.97	1.53	24.9
East: 6th Street											
1	L2	467	3.0	0.853	37.9	LOS E	9.0	229.4	0.90	1.40	22.0
6	T1	348	3.0	0.833	38.9	LOS E	7.8	199.4	0.90	1.34	22.7
16	R2	54	3.0	0.833	38.9	LOS E	7.8	199.4	0.90	1.34	22.3
Approach		870	3.0	0.853	38.4	LOS E	9.0	229.4	0.90	1.37	22.3
North: California Avenue											
7	L2	33	3.0	0.386	20.7	LOS C	1.4	35.6	0.85	0.93	27.3
4	T1	76	3.0	0.386	20.7	LOS C	1.4	35.6	0.85	0.93	27.4
14	R2	11	3.0	0.386	20.7	LOS C	1.4	35.6	0.85	0.93	26.9
Approach		120	3.0	0.386	20.7	LOS C	1.4	35.6	0.85	0.93	27.3
West: 6th Street											
5	L2	11	3.0	0.892	35.8	LOS E	17.5	447.3	1.00	1.67	23.4
2	T1	463	3.0	0.892	35.8	LOS E	17.5	447.3	1.00	1.67	23.4
12	R2	179	3.0	0.892	35.8	LOS E	17.5	447.3	1.00	1.67	23.0
Approach		653	3.0	0.892	35.8	LOS E	17.5	447.3	1.00	1.67	23.3
All Vehicles		3098	3.0	0.892	31.8	LOS D	17.5	447.3	0.95	1.49	23.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX C: VMT ANALYSIS

VEHCILE MILES TRAVELED

Future Year 2040 VMT

Time Period	Area	Full Accounting	Half Accounting
AM	City	782,386	412,031
	SOI Only	207,934	104,986
MD	City	1,157,932	617,622
	SOI Only	341,453	173,007
PM	City	1,312,201	693,137
	SOI Only	373,706	188,879
NT	City	623,197	330,864
	SOI Only	173,255	87,713
Total	City	3,875,716	2,053,655
	SOI Only	1,096,347	554,585

Source: Fehr & Peers, 2019

Base Year 2016 VMT

Time Period	Area	Full Accounting	Half Accounting
AM	City	266,041	137,720
	SOI Only	32,178	16,152
MD	City	392,406	204,970
	SOI Only	51,903	26,068
PM	City	213,534	110,998
	SOI Only	27,341	13,738
NT	City	213,534	110,998
	SOI Only	27,341	13,738
Total	City	1,085,515	564,685
	SOI Only	138,764	69,695

Source: Fehr & Peers, 2019

Interpolated Year 2018 VMT

Time Period	Area	Full Accounting	Half Accounting
AM	City	309,070	160,579
	SOI Only	46,824	23,555
MD	City	456,200	239,358
	SOI Only	76,032	38,313
PM	City	305,090	159,510
	SOI Only	56,205	28,333
NT	City	247,673	129,320
	SOI Only	39,500	19,903
Total	City	1,318,032	688,766
	SOI Only	218,563	110,103

Source: Fehr & Peers, 2019

FEHR PEERS

MEMORANDUM

Date: July 23, 2020

To: Jeff Hart –City of Beaumont

From: Jason D. Pack, P.E.
Jessica Johnson

Subject: City of Beaumont General Plan Update Roadway Network Assessment

OC17-0488

BACKGROUND

The Beaumont General Plan Update Transportation Impact Analysis (TIA) was recently completed by Fehr & Peers. The City of Beaumont proposed a new roadway connection along 2nd Street to connect Highland Springs Road and Pennsylvania Avenue. Fehr & Peers has completed a network based assessment to evaluate how the proposed change would affect the transportation network. We evaluated the Future Year model[1] outputs and vehicle miles traveled (VMT) consistent with the analysis completed as part of the General Plan Update. These assessments were compared to the original TIA assessment to determine the modifications effect on the previous traffic assessment.

NETWORK ASSESSMENT

An evaluation of the model outputs revealed slight increases and decreases throughout the network. **Attachment A** is a model plot displaying the difference in daily average volumes between the model outputs with and without the connection along 2nd Street. Please note that the approximate 7,000 daily trip reduction along 1St Street near Pennsylvania Avenue is due to the model redistributing traffic from 1st Street to 2nd Street. The remainder of the volumes noted within the network are negligible and would not significantly change the analysis in the original version of the TIA.

[1] Riverside Traffic Analysis Model (RIVTAM) was used in this analysis. The Future Year model was updated with Beaumont General Plan land use and is consistent with Southern California Association of Governments (SCAG) Regional Transportation Plan /Sustainable Communities Strategy (SCS).

VMT ASSESSMENT

A VMT assessment was also completed as a part of this effort. VMT is normalized by dividing it by the total service population, which represents residential population plus employment in the study area. The addition of the roadway connection improves VMT in the Beaumont General Plan area reducing VMT per Service Population (SP) by approximately 0.6% , as shown in the **Table 1**. The new roadway connection also slightly reduces the VMT/SP for the Western Riverside Council of Government Region (WRCOG) by approximately 0.2%. Some trip lengths are shortened within the network as the new connection improves access in the southeast portion of the City.

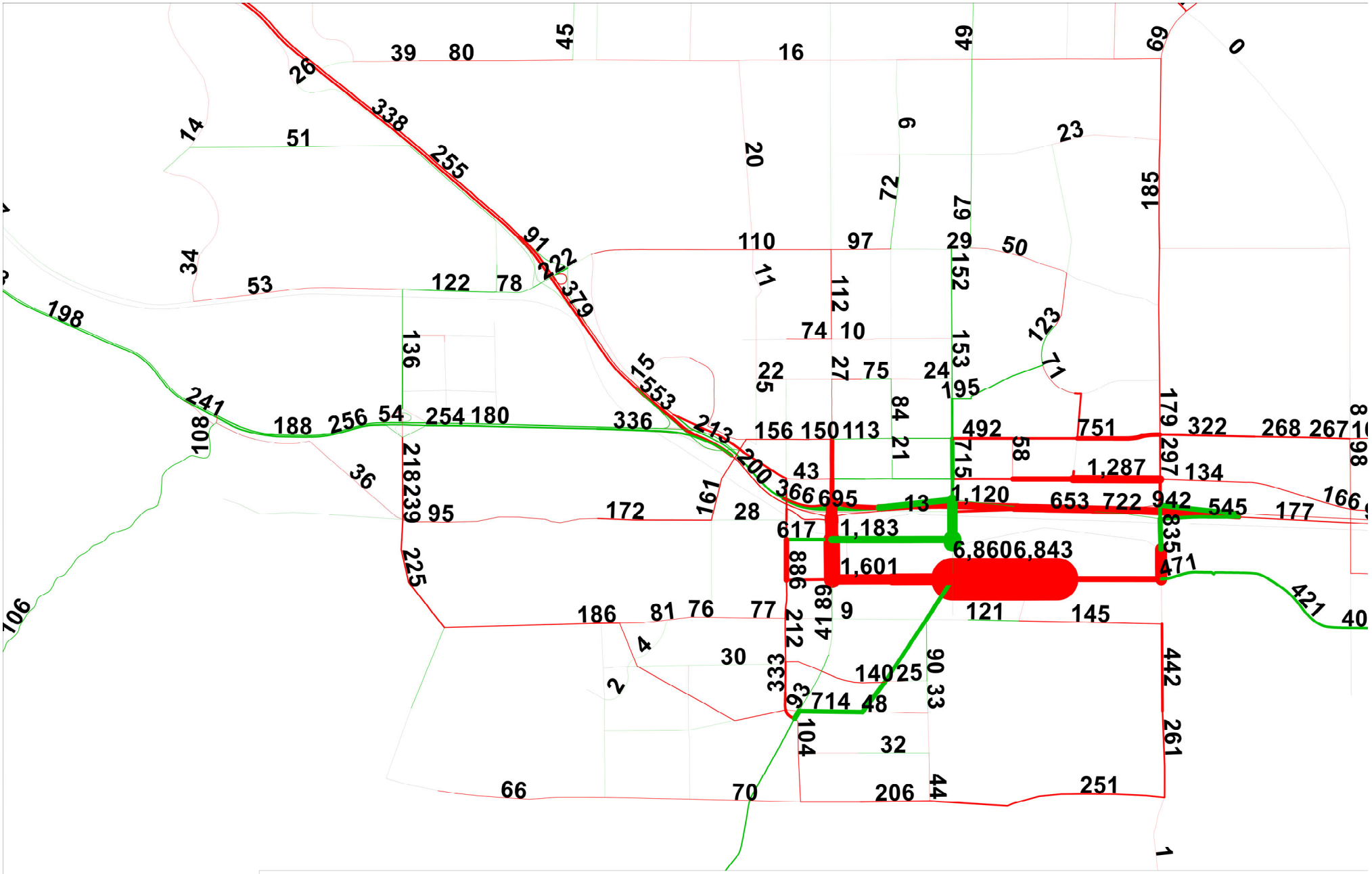
Scenario	2020 TIA Version	2019 TIA Version	Delta VMT/SP
	VMT/SP	VMT/SP	
Total Beaumont General Plan Update Area	29.5	29.7	-0.2 (-0.6%)
WRCOG Region	33.5	33.6	-0.1 (-0.2%).

Source: Fehr & Peers, 2020

The network-based assessment indicates that the new connection would not significantly change the analysis of the previous 2019 version of the Beaumont General Plan Update TIA.

We hope this information is helpful. If you have any questions or concerns, please do not hesitate to contact us at (949)-308-6300.

ATTACHMENT A - Model Plot


Beaumont General Plan Future Year Daily Volume Comparison Model Plot
Daily Volumes selection sets
Decrease in Daily Volumes
Increase in Daily Volumes
0
.4
.8
Miles
This model plot displays the difference between daily volumes with and without 2nd Street Connection