

**DRAFT**  
**ENVIRONMENTAL IMPACT REPORT**  
**for the**  
**2021-2029 Signal Hill Housing Element**  
**SCH No. 2021050296**

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## 1.0 EXECUTIVE SUMMARY

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### 1. PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

This document is a Draft Environmental Impact Report (EIR) with respect to the proposed 2021-2029 Housing Element (Project) that has been prepared by the City of Signal Hill (City). The California Environmental Quality Act (CEQA) requires that projects subject to an approval action by a public agency of the State of California, and that are not otherwise exempt or excluded, undergo an environmental review process to identify and evaluate potential impacts. Section 15050 of the CEQA Guidelines states that environmental review shall be conducted by the Lead Agency, defined in CEQA Guidelines Section 15367 as the public agency with principal responsibility for approving a project. The Project is subject to approval actions by the City, which is therefore Lead Agency for CEQA purposes.

In accordance with CEQA Guidelines Section 15123, this section of the Draft EIR provides a brief description of the Project; identifies significant effects and proposed mitigation measures or alternatives that would reduce or avoid those effects; and describes areas of controversy and issues to be resolved.

### 2 OVERVIEW OF THE PROPOSED PROJECT

#### Project Location

The Project applies to the entire City of Signal Hill. The Project also identifies specific housing availability sites within the City:

- Orange Bluff: located in the Central neighborhood adjacent to the City boundary to the south of East 28th Street between Orange Avenue and south of where East 27th Street terminates.
- Walnut Bluff: located north of E. Willow Street at 2653 Walnut Avenue in the Central neighborhood.
- Town Center Northwest: located northeast of the intersection of E. Willow Street and Walnut Avenue in the Central neighborhood. South and east of the site are developed commercial retail centers named Town Center West and Town Center North.
- Heritage Square: located northwest of the intersection of Cherry Avenue and E. Burnett Street near the City center in the Civic Center neighborhood. North of the site is E. Crescent Heights Street and west of the site is Rose Avenue. The Crescent Heights Historic District Residential Specific Plan is directly adjacent to the west.

#### Project Objectives

Section 15124(b) of the CEQA Guidelines states that “the statement of objectives should include the underlying purpose of the project.” The underlying purpose of the Project is to update the Housing Element of the City’s General Plan. Objectives of the Housing Element include:

1. Inspire a more diverse, sustainable, and balanced community through implementation of strategies and programs that will result in economically and socially diversified housing choices that preserve and enhance the special character of Signal Hill.
2. Facilitate a Variety of Housing Strategies to meet Housing Element Production Targets in a way that Complements the Existing Character of the Community.
3. Identify adequate sites to accommodate the 6th Cycle RHNA allocation and the City's housing needs.
4. Provide adequate housing stock to meet the needs of extremely low-, very low-, low-, and moderate-income households and special-needs groups.
5. Development regulations that remove constraints to the maintenance, improvement, and development of housing.
6. Maintenance and improvement of affordable housing conditions.
7. Housing opportunities for all persons, regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.
8. Improve and preserve assisted housing developments for lower-income households.

## **Project Characteristics**

The Project identifies programs and strategies to achieve the housing goals of the City. This includes the identification of housing sites that could accommodate the City's 2021-2029 Regional Housing Needs Allocation (RHNA).<sup>1</sup> The four housing sites identified are expected to accommodate the following:

1. Walnut Bluff: 90 dwelling units within a two-story multifamily development
2. Orange Bluff: 290 dwelling units within 3 and 4 story apartment buildings
3. Town Center Northwest: mixed-use development with approximately 22,000 square feet of retail and restaurant and 297 dwelling units.
4. Heritage Square: mixed-use development with 72 dwelling units, an existing 14,000-square-foot market and 18,650 square feet of new retail and restaurant space.

To implement the new Housing Element, the City intends to enact zoning and planning changes concurrently with the adoption of the Housing Element. This EIR is intended to provide the evaluation required by CEQA for all these actions necessary to facilitate the development of new housing.

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1 SCAG, *6th Cycle Final Regional Housing Needs Assessment Plan*. <https://scag.ca.gov/sites/main/files/file-attachments/6th-cycle-rhna-final-allocation-plan.pdf?1616462966> accessed May 2021.

### 3. SUMMARY OF ALTERNATIVES

Section 15126.6(a) of the CEQA Guidelines requires an EIR to “describe the range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but will avoid or substantially lessen any of the significant effects of the Project and evaluate the comparative merits of the alternatives.” The City considered a No Project Alternative, that would continue the housing sites under the existing regulatory framework; alternative housing site selection; and an alternative distribution of housing units between the selected housing sites. These alternatives would create variances in impact levels but would not avoid any of the significant effects of the Project and would not achieve the City’s objectives as successfully as the Project.

### 4. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Based on the Initial Study (see Appendix A), the City determined that preparation of an EIR was required to further evaluate potentially significant impacts related to: Air Quality, Cultural, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Land Use, Noise, Population and Housing, Public Services, Transportation, and Tribal Cultural Resources. Impacts related to Aesthetics, Agricultural and Forestry Resources, Biology, Hydrology and Water Quality, Mineral Resources, Utilities and Service Systems, and Wildfire were determined to be less than significant and are not evaluated further in this Draft EIR. **Table 1-1: Summary of Findings** presents a summary of the findings of this EIR.

### 4 AREAS OF KNOWN CONTROVERSY

The State CEQA Guidelines<sup>2</sup> require that a EIR identify areas of controversy known to the Lead Agency, including issues raised by other agencies and the public. The level of development envisioned for the housing sites has been an area of controversy at public meetings.

### 5 ISSUES TO BE RESOLVED

The State CEQA Guidelines<sup>3</sup> require that an EIR present issues to be resolved by the lead agency. These issues include the choice between alternatives and whether or how to mitigate potentially significant impacts. The major issue to be resolved by the City regarding the proposed Project is whether the City can achieve its RHNA goals through the Project.

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<sup>2</sup> California Public Resources Code, tit. 14, sec. 15123.

<sup>3</sup> California Public Resources Code, tit. 14, sec. 15123(b)(3).

**Table 1-1**  
**Summary of Findings**

<b>Impact</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
<b><i>Air Quality</i></b>		
<b>Threshold AQ-1:</b> Conflict with or obstruct implementation of the applicable air quality plan?	No mitigation measures required.	Less than significant.
<b>Threshold AQ-2:</b> Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?	No mitigation measures required.	Less than significant.
<b>Threshold AQ-3:</b> Expose sensitive receptors to substantial pollutant concentrations?	No mitigation measures required.	Less than significant.
<b>Threshold AQ-4:</b> Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	No mitigation measures required.	Less than significant.
<b><i>Cultural</i></b>		
<b>Threshold CUL-1:</b> Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	No mitigation measures required.	Less than significant.
<b>Threshold CUL-2:</b> Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	See <b>Section 4.12: Tribal Cultural Resources</b>	Less than significant.
<b><i>Energy</i></b>		
<b>Threshold ENE-1:</b> Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	No mitigation measures required.	Less than significant.
<b>Threshold ENE-2:</b> Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	No mitigation measures required.	Less than significant.
<b><i>Geology and Soils</i></b>		
<b>Threshold GEO-1:</b> Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	No mitigation measures required.	Less than significant.
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault	No mitigation measures required.	Less than significant.



Impact	Mitigation Measures	Significance after Mitigation
Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.		
ii. Strong seismic ground shaking?	No mitigation measures required.	Less than significant.
<b>Threshold GEO-3:</b> Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	No mitigation measures required.	Less than significant.
<b>Threshold GEO-6:</b> Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<b>MM GEO-1:</b> If paleontological resources are uncovered during construction activities, all ground-disturbing activities in the area of the find shall cease until a qualified paleontologist has evaluated the find, and identified the appropriate course of action in accordance with federal, state, and local The qualified paleontologist shall prepare a report according to current professional standards. The report shall be submitted to the City for review and approval. Project activities shall not proceed until the analysis and treatment of on-site paleontological resources has been approved by the City.	Less than significant.
<b>Greenhouse Gas Emissions</b>		
<b>Threshold GHG-1:</b> Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	No mitigation measures required.	Less than significant.
<b>Threshold GHG-2:</b> Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No mitigation measures required.	Less than significant.
<b>Hazards and Hazardous Materials</b>		
<b>Threshold HAZ-1:</b> Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<b>MM HAZ-1 Prepare a Soil Management Plan Prior to Commencement of Ground Disturbing Activities</b> A soil management plan should be prepared prior to any soil disturbance activities to be conducted onsite. This soil management plan should provide instructions for the contractor to implement in the event discolored or odiferous soils are discovered during any grading operations. A South Coast Air Quality Management District (SCAQMD) Rule 1166 Permit and Compliance Plan should be obtained from the SCAQMD due to the presence of volatiles prior to the start of soil disturbance operations.	Less than significant.
<b>Threshold HAZ-2:</b> Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		
<b>Threshold HAZ-4:</b> Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		

Impact	Mitigation Measures	Significance after Mitigation
	<p><b>MM HAZ-2 Daylight Abandoned Oil Wells</b> Previously abandoned oil wells should be located, daylighted and methane gas leak tested prior to the installation of vent cones and vent risers pursuant to the City of Signal Hill's Oil and Gas Code §16.24.030 and §16.24.040. As the act of daylighting oil wells involves soil disturbance, monitoring for volatile organic compounds will be required under the R1166 permit/compliance plan. The R1166 permit limits the release of volatiles in soils to 50 parts per million by volume (ppmv) or less, however some volatiles will be released into the ambient atmosphere during these activities, decreasing the residual concentrations previously detected in site soils and soil vapor.</p> <p><b>MM HAZ-3 Daylight Idle Oil Wells</b> Idle wells should be located, daylighted and abandoned in accordance with the State of California Department of Conservation, Geologic Energy Management Division (CalGEM) requirements and in accordance with the City of Signal Hill's Oil and Gas Code §16.22 and §16.24, and under the R1166 permit/compliance plan requirements.</p> <p><b>MM HAZ-4 Daylight Abandoned Pipelines</b> Abandoned pipelines should be located, daylighted and removed in accordance with the Soil Management Plan and R1166 permit/compliance plan.</p> <p><b>MM HAZ-5 Install Methane Mitigation Systems Subslab of Proposed Buildings</b> Institutional controls, i.e., a methane mitigation system to be installed subslab of any proposed buildings, pursuant to the City of Signal Hill's Oil and Gas Code §16.24.080 will effectively mitigate risks and hazards due to vapor intrusion to negligible conditions ensuring the site is safe for any future intended use including as a residential property. A redeveloped property precludes exposure to site soils by future residential occupants.</p> <p>Methane mitigation subslab of proposed buildings is recommended based on the Methane Assessments. The methane mitigation system should consist of a subslab impervious membrane placed inbetween geotextile or geocloth to protect it</p>	

Impact	Mitigation Measures	Significance after Mitigation
	<p>from sand above and the 4" thick gravel blanket below in conformance with the City of Signal Hill Oil and Gas Code §16.24.080 and City of Signal Hill Project Development Guide (June 2020). Perforated horizontal vent pipes should be placed in the 4" thick gravel blanket and tied into vertical vent risers (typically cast iron) placed inbetween the interior and exterior walls, less than 100-feet apart, extending a minimum of 3-feet above the roof line and should not terminate less than 100-feet from any opening (City of Signal Hill June 2020).</p> <p>Although designed to capture and vent methane to the atmosphere, other volatile organic compounds in the subsurface (both in the soil matrix and soil vapor) also will be captured and vented by this system.</p> <p><b>MM HAZ-6 Include Vents in Impervious Pavement if Area is 5,000 Square Feet or Greater and Contiguous to Buildings</b>          If an impervious surface paving area is 5,000 square feet or greater and contiguous to the proposed buildings, the paving should have vents spaced less than 100-ft apart consisting of four sided concrete boxes with traffic rated grates and 4" thick gravel blanket at the base. The vents should be designed to prevent surface water infiltration.</p>	
<b>Land Use and Planning</b>		
<b>Threshold LU-2:</b> Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	No mitigation measures required.	Less than significant.
<b>Noise</b>		
<b>Threshold N-1:</b> Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?  <b>Threshold N-2:</b> Generation of excessive groundborne vibration or groundborne noise levels?	<p><b>MM N-1 Construction Noise</b>          In the event construction noise levels increase to or within the "generally unacceptable" or "land use discouraged" land use compatibility for residential uses, the Applicant must utilize, without limitation, the following construction best management practices:</p> <ul style="list-style-type: none"> <li>• Shroud or shield all impact tools, and muffle or shield all intake and exhaust port on power equipment to reduce construction noise by 10 dB or more.</li> </ul>	Less than significant.

Impact	Mitigation Measures	Significance after Mitigation
	<ul style="list-style-type: none"> <li>If feasible, schedule grading activities so as to avoid operating numerous pieces of heavy-duty off-road construction equipment (e.g., backhoes, dozers, excavators, loaders, or rollers) simultaneously in close proximity to the boundary of properties of off-site noise sensitive receptors surrounding a Housing Site to reduce construction noise levels by approximately 5 to 10 dBA.</li> <li>Where feasible, temporary barriers including, without limitation, sound blankets on existing fences and walls, or freestanding portable sound walls, must be placed as close to the noise source or as close to the receptor as possible and break the line of sight between the source and receptor where modeled levels exceed applicable standards.</li> </ul>	
<b>Population and Housing</b>		
<b>Threshold POP-1:</b> Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	No mitigation measures required.	Less than significant.
<b>Public Services</b>		
<b>Threshold PUB-1:</b> Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:		
(i) Fire Protection?	No mitigation measures required.	Less than significant.
(ii) Schools?	No mitigation measures required.	Less than significant.
(iii) Parks?	No mitigation measures required.	Less than significant.
(iv) Other Public Facilities?	No mitigation measures required.	Less than significant.
<b>Transportation</b>		
<b>Threshold TRA-1:</b> Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	No mitigation measures required.	Less than significant.

Impact	Mitigation Measures	Significance after Mitigation
<b>Threshold TRA-2:</b> Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	No mitigation measures required.	Less than significant.
<b>Threshold TRA-4:</b> Result in inadequate emergency access?	No mitigation measures required.	Less than significant.
<b>Tribal Cultural</b>		
<b>Threshold TRI-1:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:		
(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	No mitigation measures required.	Less than significant.
(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<p><b>MM TCR-1.</b> The project applicant/lead agency shall retain a Native American monitor from (or approved by) the Gabrieleño Band of Mission Indians – Kizh Nation (the “Kizh” or the “Tribe”) - the direct lineal descendants of the project location. The monitor shall be retained prior to the commencement of any “ground-disturbing activity” for the subject project, at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). “Ground-disturbing activity” includes, but is not limited to, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.</p> <p>A copy of the executed monitoring agreement shall be provided to the lead agency prior to the earlier of the commencement of any ground-disturbing activity for the project, or the issuance of any permit necessary to commence a ground-disturbing activity.</p> <p>The project applicant/developer shall provide the Tribe with a minimum of 30 days advance written notice of the commencement of any project ground-disturbing activity so that the Tribe has sufficient time to secure and schedule a monitor for the project.</p>	Less than significant.

Impact	Mitigation Measures	Significance after Mitigation
	<p>The project applicant/developer shall hold at least one (1) pre-construction sensitivity/educational meeting prior to the commencement of any ground-disturbing activities, where at a senior member of the Tribe will inform and educate the project's construction and managerial crew and staff members (including any project subcontractors and consultants) about the TCR mitigation measures and compliance obligations, as well as places of significance located on the project site (if any), the appearance of potential TCRs, and other informational and operational guidance to aid in the project's compliance with the TCR mitigation measures.</p> <p>The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe.</p> <p>Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request.</p> <p>Native American monitoring for the project shall conclude upon the latter of the following: (1) written confirmation from a designated project point of contact to the Tribe that all ground-disturbing activities and all phases that may involve ground-disturbing activities on the project site and at any off-site project location are complete; or (2) written notice by the Tribe to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase (known by the Tribe at that time) at the project site and at any off-site project location possesses the potential to impact TCRs.</p> <p><b>MM TCR-2.</b> Upon the discovery of a TCR, all construction activities in the immediate vicinity of the discovery (i.e., not less than the surrounding 50 feet) shall cease. The Tribe shall be</p>	

Impact	Mitigation Measures	Significance after Mitigation
	<p>immediately informed of the discovery, and a Kizh monitor and/or Kizh archaeologist will promptly report to the location of the discovery to evaluate the TCR and advise the project manager regarding the matter, protocol, and any mitigating requirements. No project construction activities shall resume in the surrounding 50 feet of the discovered TCR unless and until the Tribe has completed its assessment/evaluation/recovery of the discovered TCR and surveyed the surrounding area.</p> <p>The Tribe will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate in its sole discretion, and for any purpose the Tribe deems appropriate, including but not limited to, educational, cultural and/or historic purposes.</p> <p>If Native American human remains and/or grave goods are discovered or recognized on the project site or at any off-site project location, then all construction activities shall immediately cease. Native American “human remains” are defined to include “an inhumation or cremation, and in any state of decomposition or skeletal completeness.” (Pub. Res. Code § 5097.98 (d)(1).) Funerary objects, referred to as “associated grave goods,” shall be treated in the same manner and with the same dignity and respect as human remains. (Pub. Res. Code § 5097.98 (a), d)(1) and (2).)</p> <p>Any discoveries of human skeletal material or human remains shall be immediately reported to the County Coroner (Health &amp; Safety Code § 7050.5(c); 14 Cal. Code Regs. § 15064.5(e)(1)(B)), and all ground-disturbing project ground-disturbing activities on site and in any other area where the presence of human remains and/or grave goods are suspected to be present, shall immediately halt and remain halted until the coroner has determined the nature of the remains. (14 Cal. Code Regs. § 15064.5(e).) If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed.</p> <p>Thereafter, construction activities may resume in other parts of the project site at a minimum of 200 feet away from discovered human remains and/or grave goods, if the Tribe determines in its</p>	

Impact	Mitigation Measures	Significance after Mitigation
	<p>sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Tribal monitor and/or archaeologist deems necessary). (14 Cal. Code Regs. § 15064.5(f).)</p> <p>Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or grave goods. Any historic archaeological material that is not Native American in origin (non-TCRs) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.</p> <p><b>MM TCR-3.</b> Any discovery of human remains and/or grave goods discovered and/or recovered shall be kept confidential to prevent further disturbance.</p> <p>As the Most Likely Descendant (“MLD”), the Koo-nas-gna Burial Policy shall be implemented for all discovered Native American human remains and/or grave goods. Tribal Traditions include, but are not limited to, the preparation of the soil for burial, the burial of funerary objects and/or the deceased, and the ceremonial burning of human remains.</p> <p>If the discovery of human remains includes four (4) or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created.</p> <p>The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated “grave goods” (aka, burial goods or funerary objects) are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later, as well as other items made exclusively for burial purposes or to contain human</p>	



Impact	Mitigation Measures	Significance after Mitigation
	<p>remains. Cremations will either be removed in bulk or by means necessary to ensure complete recovery of all sacred materials.</p> <p>In the case where discovered human remains cannot be fully recovered (and documented) on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to divert the project while keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed.</p> <p>In the event preservation in place is not possible despite good faith efforts by the project applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. The site of reburial/repatriation shall be agreed upon by the Tribe and the landowner, and shall be protected in perpetuity.</p> <p>Each occurrence of human remains and associated grave goods will be stored using opaque cloth bags. All human remains, grave goods, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items will be retained and shall be reburied within six months of recovery.</p> <p>The Tribe will work closely with the project's qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery data recovery-related forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remain</p>	

## 1.0 INTRODUCTION

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### 1. PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Sections 21000, et seq.), and its implementing guidelines (14 CCR 15000 et seq., hereinafter “CEQA Guidelines”), requires that lead agencies consider the potential environmental consequences of projects over which they have discretionary approval authority prior to taking approval action on such projects.

The subject of this Draft EIR is the proposed update to the Housing Element of the General Plan of the City of Signal Hill. The update to the Housing Element constitutes a “Project” as defined in CEQA Guidelines Section 15378.

CEQA defines “Lead Agency” as the public agency with primary responsibility for approving a project and thus has primary responsibility for ensuring compliance with the CEQA process. The City of Signal Hill (City) is the “Lead Agency” for this document.

A lead agency may prepare an Environmental Impact Report (EIR) for any project that is considered to may have a significant impact on the environment. As described in CEQA Guidelines Sections 15168(a)(b), an EIR is an informational document that will inform public agency decision-makers and the public of the significant environmental effects of a project, identify possible ways to minimize any significant effects, and describe reasonable project alternatives. Public agencies shall consider the information in the EIR, along with other information that may be presented to the agency, prior to approving the Project.

### 2. ENVIRONMENTAL REVIEW PROCESS

The CEQA Guidelines define a process for environmental review that includes a series of steps that must be completed prior to any action taken by the Lead Agency on a project.

#### Scoping Process

An Initial Study was prepared for the proposed Project and released with a Notice of Preparation (NOP) for a 30-day public review period during May and June, 2021. A virtual scoping meeting was held in May to receive public comment. The Initial Study, NOP, and comment letters are included in **Appendix A** of this Draft EIR.

The City determined through the Initial Study that the proposed Project would result in less than significant impacts with respect to aesthetics; agricultural and forestry resources; biological resources; hydrology/water quality; mineral resources; recreation; utilities/service systems; and wildfire. Therefore,

these areas are not analyzed further in this Draft EIR. For a complete discussion of the environmental issues that were scoped out from this Draft EIR, refer to **Section 6.0: Effects Found Not to be Significant**.

## **Review and Comment on the Draft Environmental Impact Report**

CEQA requires that the Lead Agency provide the public and agencies the opportunity to review and comment on the Draft EIR. This Draft EIR will be published and distributed for a 45-day review period starting September 30, 2021 and ending November 15, 2021

Copies of this Draft EIR have been sent to the State Clearinghouse, responsible agencies, other agencies that have commented on the NOP, and to all interested parties that have requested notice and copies of the Draft EIR.

The Draft EIR is also available for review at the following locations:

- In person at Signal Hill City Hall – Community Development Department located at 2175 Cherry Avenue, Signal Hill, CA 90755; and
- Online at the City’s “Public Notices & Press Releases” webpage at <https://www.cityofsignalhill.org/306/Public-Notices-Press-Releases> and on the “General Plan” Planning webpage at <https://www.cityofsignalhill.org/85/General-Plan>.

Interested individuals, organizations, responsible agencies, and other agencies can provide written comments about the Draft EIR addressed to:

- Erika Ramirez, Planning Manager, City of Signal Hill Community Development Department 2175 Cherry Avenue, Signal Hill, CA 90755 or [eramirez@cityofsignalhill.org](mailto:eramirez@cityofsignalhill.org).

When submitting comments, please note “Housing Element Update EIR” in the subject line and include the name of the contact person within the commenting agency (if applicable).

After completion of the review period, a Final EIR will be prepared that includes responses to comments submitted on the Draft EIR and any necessary corrections or additions to the Draft EIR. The Final EIR will be made available to agencies and the public prior to the City’s determination on the Project. Once the Final EIR is complete, the City may certify the Final EIR, prepare Findings, adopt a mitigation monitoring and reporting program, and issue a Notice of Determination, which is the final step in the CEQA process.

### 3. ORGANIZATION OF THE DRAFT EIR

As stated, a principal objective of CEQA is to ensure that the environmental review process be a public one. In meeting this objective, a EIR informs members of the public, reviewing agencies, and decision-makers of the physical impacts associated with a project. Sections of the Draft EIR are organized as follows:

**Executive Summary** provides a summary of the Project, impacts, mitigation measures and alternatives.

**Section 1: Introduction** reviews the purpose, scope and organization of the document.

**Section 2: Project Description** presents a description of the proposed Project including the objectives, locations, components and characteristics.

**Section 3: Environmental Setting** provides a summary of the context within which the Project would occur.

**Section 4: Environmental Impact Analysis** presents the existing conditions, Project impact analysis, mitigation measures, and conclusions regarding the level of significance after mitigation.

**Section 5: Alternatives** discusses alternatives to the proposed Project that have been developed and analyzed to provide additional information on ways to avoid or lessen the impacts of the Project.

**Section 6: Effects Found Not to be Significant** provides a summary of those topics that were determined not to be significant during the scoping process.

**Section 7: Other Environmental Considerations** provides a discussion of significant unavoidable impacts that would result from the Project and the reasons why the Project is being proposed notwithstanding the significant unavoidable impacts. An analysis of the significant irreversible changes in the environment and potential secondary effects that would result from the Project is also presented here. This section also analyzes potential growth-inducing impacts of the Project and potential secondary effects caused by the implementation of the mitigation measures for the Project.

**Section 8: References** lists the principal documents, reports, maps, and other information sources referenced in this Draft EIR.

**Section 9: Preparers of the EIR and Persons Consulted** lists persons involved in the preparation of this Draft EIR or who contributed information incorporated into this Draft EIR.

**Appendices** to this Draft EIR include the Initial Study, NOP, and written comments, as well as technical reports and data used and referenced in the Draft EIR.

## 2.0 PROJECT DESCRIPTION

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### 1. INTRODUCTION

As stated in Section 15124 of the CEQA Guidelines, the Project Description of a EIR must contain the location and boundaries of the project; a statement of the project objectives sought; a general description of the project's characteristics; and a brief description of the intended uses of the EIR. This Section identifies such required information.

### 2. LOCATION

The Project applies to the entire City. The City of Signal Hill is located in Los Angeles County, generally in the southern area of the greater Los Angeles Metropolitan Area. The City is surrounded by the City of Long Beach and is just over two square miles in area.

The City is regionally accessible from Interstate 405 (San Diego Freeway) which is located to the immediate North. Also Cherry Avenue and Pacific Coast Highway provide access to the City. The City is approximately three miles north of the large Port of Long Beach and 22 miles south of Downtown Los Angeles.

The Project also identifies specific housing availability sites within the City:

- Orange Bluff: located in the Central neighborhood adjacent to the City boundary to the south of East 28th Street between Orange Avenue and south of where East 27th Street terminates.
- Walnut Bluff: located north of E. Willow Street at 2653 Walnut Avenue in the Central neighborhood.
- Town Center Northwest: located northeast of the intersection of E. Willow Street and Walnut Avenue in the Central neighborhood. South and east of the site are developed commercial retail centers named Town Center West and Town Center North.
- Heritage Square: located northwest of the intersection of Cherry Avenue and E. Burnett Street near the City center in the Civic Center neighborhood. North of the site is E. Crescent Heights Street and west of the site is Rose Avenue. The Crescent Heights Historic District Residential Specific Plan is directly adjacent to the west.

### 3. PROJECT OBJECTIVES

California State law requires each county and city to adopt a General Plan for the physical development of the county or city, and any land outside its boundaries which in the planning agency's judgement bears relation to its planning.<sup>1</sup> According to the 2017 General Plan Guidelines, all counties and cities are required to adopt seven mandatory elements, including land use, circulation, housing, conservation, open space, noise, and safety. Two additional elements, air quality and environmental justice, are also required for certain local jurisdictions.<sup>2</sup>

The Housing Element establishes the goals, objectives, policies and programs that serves as the foundation for the city's housing strategy to achieve specific housing goals and improve local housing conditions. The Housing Element also identifies a city's housing conditions and needs using the Regional Housing Needs Assessment (RHNA) allocation provided by the regional Metropolitan Planning Organizations (MPOs).

The City has identified the following Project objectives:

1. Inspire a more diverse, sustainable, and balanced community through implementation of strategies and programs that will result in economically and socially diversified housing choices that preserve and enhance the special character of Signal Hill.
2. Facilitate a Variety of Housing Strategies to meet Housing Element Production Targets in a way that Complements the Existing Character of the Community.
3. Identify adequate sites to accommodate the 6th Cycle RHNA allocation and the City's housing needs.
4. Provide adequate housing stock to meet the needs of extremely low-, very low-, low-, and moderate-income households and special-needs groups.
5. Development regulations that remove constraints to the maintenance, improvement, and development of housing.
6. Maintenance and improvement of affordable housing conditions.
7. Housing opportunities for all persons, regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.
8. Improve and preserve assisted housing developments for lower-income households.

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1 Government Code Section 65300.

2 Government Code Section 65302.

## 4. PROJECT CHARACTERISTICS

### Housing Strategy

The Project includes the following programs to address the State requirements for a Housing Element:

1. Identify Sites to Accommodate the City's Share of the Regional Housing Need
2. Assist the Development of Lower Income and Moderate-Income Housing
3. Remove Governmental and Nongovernmental Constraints to Housing
4. Conserve and Improve the Existing Stock of Affordable Housing
5. Promote Housing Opportunities for All/Affirmatively Furthering Fair Housing

Of these programs, the identification of housing sites is likely to cause a reasonably foreseeable physical change in the environment and therefore is the subject of the analysis in this DEIR. The policies identified to implement this program, include designating the sites that would provide a variety of housing, specifically housing to meet the Regional Housing Needs, and implement policy actions such as specific plans, zone changes and general plan amendments that would enable the development of those sites.

For the 2021-2029 Planning Period, the Southern California Association of Governments (SCAG) Regional Housing Needs Allocation (RHNA) for the City identified a housing need of 517 housing units to include 161 very low-income units, 78 low-income units, 90 moderate-income units, and 188 above moderate-income units.<sup>3</sup> To ensure sufficient capacity is available to meet the RHNA allocation for the Housing Element planning period, the HCD recommends the cities allocate at least 15 to 30 percent additional units in capacity than the required inventory stipulated by the RHNA allocation. Consistent with this recommendation, four potential candidate housing inventory sites (Housing Site) have been identified in the 2021-2029 Housing Element with a residential development capacity to accommodate up to 724 units.

### Housing Sites

The Housing Element is required to identify housing sites that are adequate in size, zoned appropriately and could feasibly be developed with the allocated housing. The City lacks adequately sized sites that are already zoned residential and could be further developed. As such, the City has conducted an extensive assessment of sites within the City and collaborated with Signal Hill Petroleum, the largest land owner within the City, to identify sites that could accommodate the RHNA allocation. The sites that have been

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3 SCAG, *6th Cycle Final Regional Housing Needs Assessment Plan*. <https://scag.ca.gov/sites/main/files/file-attachments/6th-cycle-rhna-final-allocation-plan.pdf?1616462966> accessed May 2021.

identified are considered non-vacant due to the presence of existing oil wells are not for residential uses. As such, the Project includes planned rezoning of the sites and the abandonment of the existing wells.

The four sites that have been identified as described below. A potential housing capacity for each site was determined based on a likely development scenario. Implementation actions that the City would undertake as part of the Project were then identified for each site.

## **1. Walnut Bluff**

### ***Housing Site Condition***

Walnut Bluff is located north of Willow Street at 2653 Walnut Avenue, Signal Hill, CA 90755 (APN# 7212-010-038). The site is located in the Central neighborhood of the City and has approximately 2 acres identified for potential residential development. The rectangular site borders other commercial development to the east and north, with Walnut Avenue to the east of the site and Willow Street to the south of the site. The existing site is vacant aside from four active oil and gas wells (two of which have idle status), four abandoned wells, and limited vegetation.

### ***Surrounding Environment***

The Walnut Bluff Housing Site is located on mostly vacant land occupied by a few buildings and active drilling rigs. North of the Housing Site, located on 27<sup>th</sup> Street, is the Signal Hill Police Department which is approximately 450 feet away. South of the Housing Site, adjacent to Willow Street, is more vacant land that has been disturbed by oil and drilling activities. The area is mostly vacant with the exception of the drilling rigs present. East of the Housing Site, which runs parallel to Walnut Avenue, is vacant, open space that is also occupied by more drilling rigs. West of the Housing Site is a woodworking shop, Interior Workshop, and the LA County Office of the Assessor, which is approximately 0.2 miles away and is located parallel to Gundry Avenue.

### ***Housing Potential***

The Walnut Bluff Housing Site is anticipated to accommodate 90 dwelling units within a multifamily development. The Walnut Bluff Housing Site is zoned CI and the General Plan designation is Commercial Industrial. As part of the Project, the City intends to adopt a zone change to Special Purpose Housing (SP-7) Specific Plan, and a General Plan amendment to Very High Density Residential (35-45 dwelling units per acre). Building heights after rezoning would be limited to 2 stories or heights comparable to existing surrounding development.



## 2. Orange Bluff

### ***Housing Site Condition***

Orange Bluff is located in the Central neighborhood adjacent to the City boundary south of East 28<sup>th</sup> Street between Orange Avenue and extending just south of where East 27<sup>th</sup> Street dead ends into the property from the east (APN #s: 7212-008-049, -051, and 7212-010-010, -014, -015, -018, -019, -029). Development north and east of the site are mostly Commercial Office and Light Industrial sites, with a few intermittent vacant sites. The area set aside for residential development is approximately 7.1 acres. The existing site is mostly vacant; however, the center of the site is developed with a Light Industrial building. Scattered about the site are remnants of previous developments including foundations and paved areas, with limited vegetation.

### ***Surrounding Environment***

The Orange Bluff Housing Site is near both the Walnut Bluff and the Town Center Northwest Housing Sites. The site extends across several areas of existing Commercial Office and Light Industrial space along the western edge of the City. North of the Housing Site, along 28<sup>th</sup> Street, is a glass and mirror shop and Light Industrial facility. South of the Housing Site, along Willow Street, is the PGA William Synneph, Golf Academy, a recreational facility. Gundry Avenue runs along the eastern side of the Housing Site. The northeastern side of the Housing Site has several commercial properties such as an autobody shop, auto parts store, and painters, while the southeastern side has a woodworking shop called Interior Workshop and the LA County Office of the Assessor, a tax assessor. West of the Housing Site, near the intersection of Orange Avenue and Willow Street is the Long Beach Municipal Cemetery. On the northwestern portion, towards 28<sup>th</sup> Street, is the Willow Springs Park.

### ***Housing Potential***

The Orange Bluff site is expected to accommodate 290 dwelling units within 3 and 4 story apartment buildings and would include resident amenities and open space typical of a multi-family complex.

The Orange Bluff existing zoning is CI. The General Plan designation is Commercial Industrial. As part of the Project, the City intends to rezone the site to Special Purpose Housing (SP-7). Building heights after rezoning would be limited to 2 stories or heights comparable to existing surrounding development.

## 3. Town Center Northwest

### ***Housing Site Condition***

Town Center Northwest is located northeast of the intersection of Willow Street and Walnut Avenue (APN #: 7212-011-034) in the Central neighborhood. South and east of the site are developed commercial retail

centers named Town Center West and Town Center North. To the north there are Light Industrial sites. The area set aside for residential development is approximately 7.4 acres. The existing site contains one of seven drill sites in the City housing eleven injection wells (three of which have idle status). There are also approximately fourteen active oil and gas wells (9 of which have idle status) outside of the drill site area, approximately ten abandoned wells, and limited vegetation. The area outside of the fenced drill site is currently used for storage of oil field related equipment.

### ***Surrounding Environment***

The Town Center Northwest Housing Site is parallel to the Walnut Bluff Housing Site. As mentioned, the site contains one drill site. Gaviota Avenue runs north of the Housing Site. Also north of the Housing Site is Gregg Drilling LLC, a drilling contractor, and Ancon Services, an oil and natural gas company. South of the Housing Site, along Willow Street, is a shopping center with several amenities: grocery store, chain coffee shops, and restaurants. Immediately east of the Housing Site is another shopping center with a dollar store, takeout restaurant, and a cellphone store. Along Walnut Avenue, west of the Housing Site, is the Walnut Bluff Housing Site that is mostly vacant space and a construction company.

### ***Housing Potential***

The Town Center Northwest House Site is anticipated to be developed as mixed-use, with approximately 22,000 square feet of retail and restaurant uses along Willow Street and 297 dwelling units within the northern portion of the site fronting on Walnut avenue. The Town Center Northwest Housing Site existing zoning is Commercial Corridor Specific Plan (SP-6). The General Plan designation is Town Center. As part of the Project, the site would be rezoned to a Town Center Northwest (SP-21) Specific Plan. Building heights after rezoning would be limited to 2 stories or heights comparable to existing surrounding development.

## **4. Heritage Square**

### ***Housing Site Condition***

Heritage Square is located near the City center in the Civic Center neighborhood, northwest of the intersection of Cherry Avenue and Burnett Street. North of the site is Crescent Heights Street and west of the site is Rose Avenue (APN #s: 7213-006-014, -015, -019, -020). The Crescent Heights Historic District residential Specific Plan is directly adjacent to the west. T

This site is approximately 8.8 acres in size and is bisected by Gardena Avenue. The site contains an existing commercial retail use ("Mother's Market & Kitchen"). There are also four active oil and gas wells, six abandoned wells, and limited vegetation.

### ***Surrounding Environment***

The Heritage Square Housing Site is located in an area that has been mostly disturbed by drilling activities. North of the Housing Site is a shopping center which is approximately 0.1 miles away. It has a health food store, Mother's Market and Kitchen, and an EVgo Charging Station. South of the Housing Site on Burnett Street is a lot of land that is mostly vacant and utilized for drilling activities. To the east is Cherry Avenue, which runs parallel to the Housing Site is a Home Depot and Garden Center, which is approximately 0.2 miles away. West of the Housing Site, parallel to Rose Avenue, is another lot of mostly vacant land occupied by a drilling rig and some residential homes.

### ***Housing Potential***

The Heritage Square Housing Site existing zoning is CTC, and Crescent Heights Historic District (SP-11) Specific Plan. The General Plan designation is Town Center. The Land Use Element of the General Plan calls for the area to be re-designated and established as a Central Business District (CBD). Heritage Square will be rezoned under Crescent Heights Historic District, which will continue to maintain the historic nature of the neighborhood and its surroundings.

The Heritage Square site could be developed as a mixed-use development, retaining the existing 14,000-square-foot market and adding 18,650 square feet of retail and restaurant space along Cherry Avenue and 72 dwelling units on the western portion of the site. Gardena Avenue would be retained for access.

### **Uses Of This EIR**

To implement the new Housing Element, the City intends to enact zoning and planning changes concurrently with the adoption of the Housing Element. This EIR is intended to provide the evaluation required by CEQA for all these actions necessary to facilitate the development of new housing.

To accommodate the RHNA housing units, the City intends to rezone non-vacant land to residential uses. As described above, the sites would be rezoned as Special Purpose Housing. In addition, new Specific Plans would be implemented for Orange Bluff and Walnut Bluff and a General Plan Amendment to the Central Business District would be adopted to enable housing at the Town Center Northwest site.

## 3.0 ENVIRONMENTAL SETTING

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Section 15125 of the CEQA Guidelines requires an EIR to include a description of the physical environmental conditions in the vicinity of a proposed project at the time the Notice of Preparation is published, and states this environmental setting normally constitutes the baseline physical condition used to determine if an impact is significant.

### 1. THE CITY OF SIGNAL HILL

The City of Signal Hill is located in southern Los Angeles County, as shown in **Figure 3.0-1: Regional Location Map**. The City of Signal Hill (City) includes approximately 2.2 square miles on top of a hill with a panoramic view of neighboring communities, including the City of Long Beach, which surrounds the City, as shown in **Figure 3.0-2: Project Location Map**. Similar to other nearby cities, the population in the City has grown from a population of approximately 9,333 in the year 2000 to a population of approximately 11,749 in 2018.<sup>1</sup> The City shares its transportation network and public services with the neighboring City of Long Beach. Regional access to the Project Site is supported primarily by Interstate 405 (I-405) and the Pacific Coast Highway (PCH). The City's transportation system consists of roads and a variety of public transportation systems, including buses, light rail, and paratransit service, airports, and seaports.<sup>2</sup> The City has a history as one of the richest oil fields in the world since oil was first discovered in 1919. A prolific oil industry was introduced and developed in the area when the Long Beach Oil Field was found, encompassing the entire footprint of the City. Many active oil drilling rigs in the City continue to operate today.<sup>3</sup>

The City is located in the SCAG region, which is the largest MPO in the country, including approximately 19 million people.<sup>4</sup> The region contains six counties: Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County. Today, the region contains 6 million households and 8 million jobs. While the growth trend has slowed in recent years due to a combination of factors, the region's population continues to grow at approximately 0.85 percent annually, or by approximately 161,500 people annually. Population growth is projected to slow, but continued growth through 2045 is expected. This population growth in turn translates into continued growth for the number of households and jobs in the region.

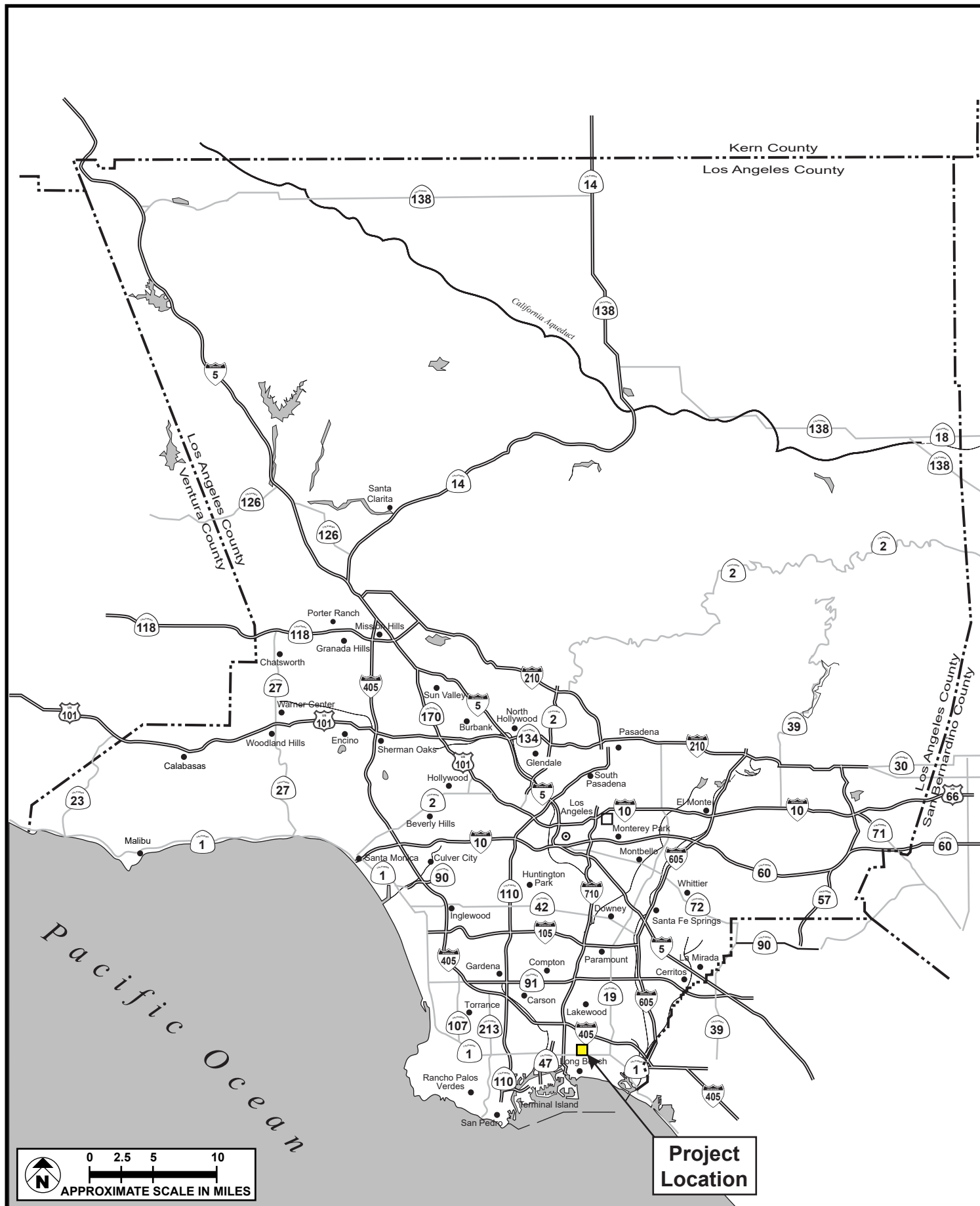
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1 SCAG. Profile of the City of Signal Hill. [https://scag.ca.gov/sites/main/files/file\\_attachments/signalhill\\_localprofile.pdf?1606011167](https://scag.ca.gov/sites/main/files/file_attachments/signalhill_localprofile.pdf?1606011167). Accessed July 2021.

2 City of Signal Hill. General Plan- Circulation Element. <https://www.cityofsignalhill.org/DocumentCenter/View/309/circulation-element?bidId=>. Accessed July, 2021.

3 City of Signal Hill. The Oil Field. <https://www.cityofsignalhill.org/422/The-Oil-Field>. Accessed July, 2021.

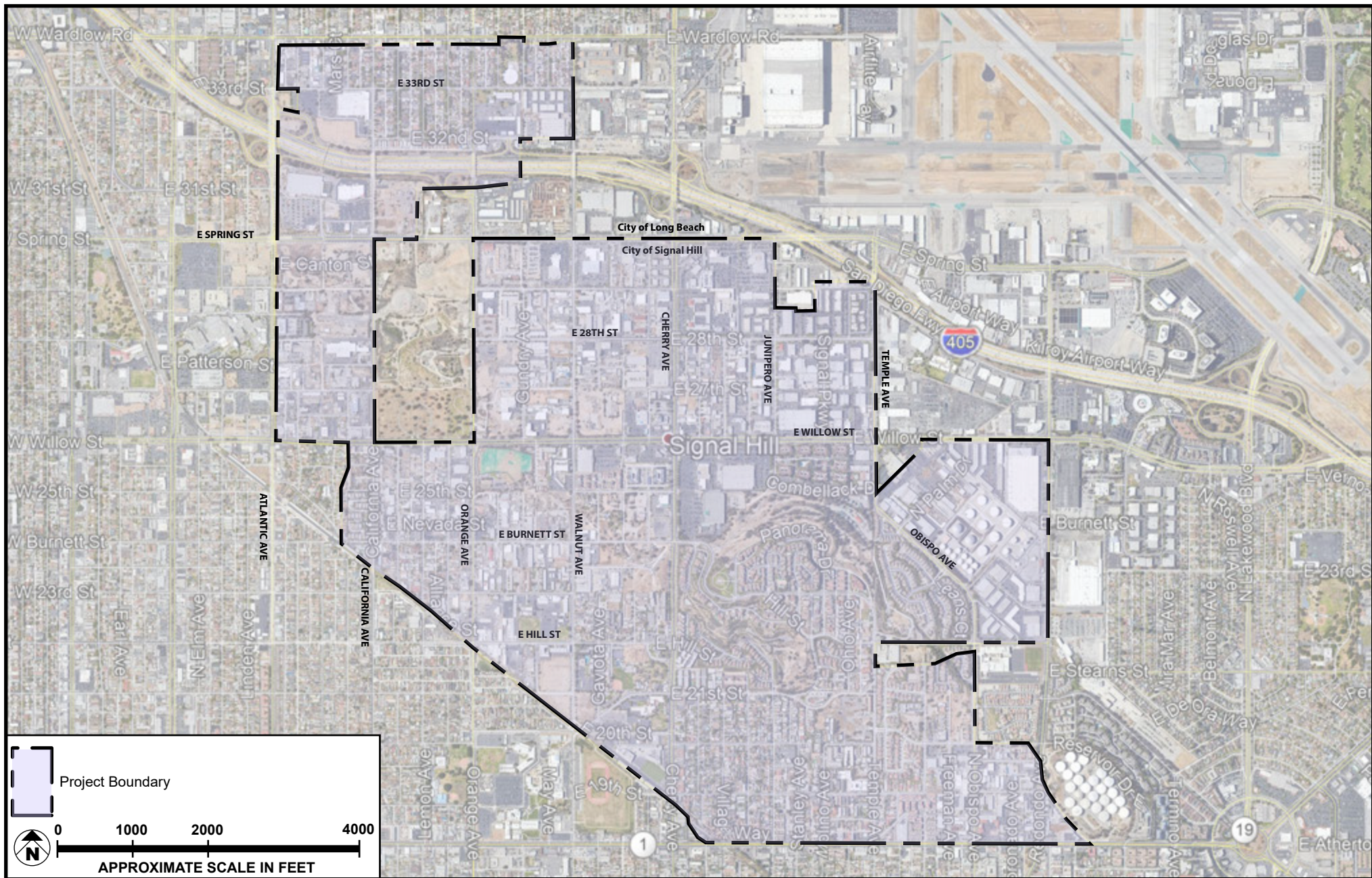
4 SCAG. Connect SoCal- The 2020-2045 RTP/SCS. [attachments/0903fconnectsocal-plan\\_0.pdf?1606001176](https://www.cityofsignalhill.org/422/The-Oil-Field). Accessed July 2021.



SOURCE: Meridian Consultants, LLC - 2021

FIGURE 3.0-1





SOURCE: Google Earth - 2021

FIGURE 3.0-2

The City is made up of 7 neighborhoods: North End, Atlantic/Spring, Central, West Side, Civic Center, Hilltop, and Southeast.

**North End**

The North End neighborhood is a well-established suburb since before the City's incorporation in 1924, when many of the dwellings were relocated to make way for petroleum exploration. Located entirely north of the I-405 freeway, the neighborhood is separated by the highway from the rest of the City. Due to the proximity of the neighborhood to the highway infrastructure, a sound wall was constructed to alleviate the travelling vehicle noise in 1998. Today, the neighborhood is lined mostly with large shady trees and cottage homes, with relatively large lots. The neighborhood is also home to the Burroughs Elementary School and Reservoir Park. The southern half of Reservoir Park is a five-million-gallon reservoir and pump station. A minimal amount of two-story apartment buildings also exists in the neighborhood on 32nd Street near California Avenue.

**Atlantic/Spring**

The Atlantic/Spring Neighborhood is located between Atlantic Avenue and California Avenues and the 405-Freeway and E. Willow Street. This neighborhood remained largely undeveloped until the 2000s and still retains a large portion of the remaining vacant land in the City. The availability of undeveloped land is largely a result of ongoing oil production activities from independent oil operators, contaminated soils, small lots, and lack of infrastructure. Today, the neighborhood includes commercial retail and restaurants, medical offices, and light industrial operations.

**Central**

The Central Neighborhood lies south of the I-405 freeway between Temple and California Avenues. Willow Street is the southern boundary of the Central Neighborhood except that the Hathaway Tank Farm and industrial complex between Hathaway and Redondo Avenues is included in the Central Neighborhood. During the oilfield boom years from 1923 to 1965, the Central Neighborhood served as a vast storage yard for the oil field. As oil production declined, the major petroleum companies sold the land and their interests in the Signal Hill oil field and relinquished the surface rights back to property owners. Some storage yards remain in the neighborhood to this day. Today, the neighborhood consists of primarily small size industrial lots with narrow streets and alleys. Industrial and business buildings dominate the neighborhood and benefit from the location's easy access to several freeways and a nearby airport. The area is rich with commercial services such as auto centers, auto repair shops, banking, fitness center, and trade schools.

**West Side**

The West Side Neighborhood is located south of E. Willow Street between Orange Avenue and the abandoned Pacific Electric Railroad right-of-way. Historically, the area includes a mix of older industrial and residential land uses on small size lots with scattered oil field operations. Today, the neighborhood is characterized with mostly rental properties, some of which house more than 150 units. The neighborhood contains more rental properties as compared to other areas of the City. The neighborhood also has a mix of historical buildings, industrial buildings, and storage yards. The average income in this neighborhood is lower than the average income of the rest of the City.

**Civic Center**

The Civic Center Neighborhood takes its name from the many public institutions located between Cherry and Walnut Avenues and E. Willow Street and the southerly City boundary along the abandoned Pacific Electric railroad right-of-way. The Civic Center neighborhood includes public service institutions including the City Hall, police station, library, and community center serving the City. Three schools are also located in the neighborhood which are the Signal Hill and Alvarado elementary schools, and the Preparatory Academy junior high school. Aside from public services and schools, the neighborhood contains a mix of older homes, contemporary condominiums, and single-family residential homes. The retail development of the area has taken a different turn in recent years with the City shifting their focus from retail sales tax generating establishments such as Costco and Home Depot towards more neighborhood shopping venues such as grocery stores, beauty supply shop, coffee house, and restaurants.

**Hilltop**

The Hilltop Neighborhood is located on elevated land, as compared to the rest of the City, and enjoys panoramic views of its surrounding landscape. The boundaries of the Hilltop Neighborhood are E. Willow Street on the north, 21st and 19th Streets on the south, Cherry Avenue on the west and Hathaway and Obispo Avenues on the east. Developments in the area include single- and multifamily dwellings, retail amenities at Town Center East with Costco and Home Depot, and telecommunication sites. Current development in the Hilltop Neighborhood is largely in accordance with the Hilltop Area Specific Plan which includes a mix of single-family detached dwellings and condominium flats. Pedestrian walking trails will connect the neighborhood to parks and other neighborhoods nearby.

**Southeast**

The Southeast Neighborhood includes the area south of E. Willow Street, west of Cherry Avenue, north of Pacific Coast Highway, and generally east of Redondo Avenue. The neighborhood went through a



redevelopment effort from 1989 to 2000, with the replacement of former commercial properties along Pacific Coast Highway with new single-family homes, the removal of obsolete commercial uses, and the building of a neighborhood park. Existing land use in the neighborhood includes single- and multifamily developments, light manufacturing, warehouses, and offices.

## 2. APPLICABLE REGIONAL AND LOCAL PLANS

### Southern California Association of Governments (SCAG)

SCAG is the authorized regional agency for intergovernmental review of programs proposed for federal financial assistance and direct development activities. SCAG consists of local governments from six counties including Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial counties. These six counties encompass 191 cities in the region. SCAG is also responsible for the designated Regional Transportation Plan (RTP), including its Sustainable Communities Strategy (SCS) component pursuant to SB 375. The 2020-2045 RTP/SCS, also known as Connect SoCal, was adopted by SCAG on September 3, 2020. The 2020–2045 RTP/SCS is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern.

Update of the 2020-2045 RTP/SCS reflects changes in economic, policy, and demographic conditions in the region.<sup>5</sup> In the SCAG region, annual growth is slowing down in concert with the national population growth trend. Population growth in the region slowed down from about 0.85 percent in 2020 to about 0.45 percent by 2045. These changes are driven by declines in fertility and affected by high housing costs in the region. The population in the region is also growing older, with a median age of 32.3 in 2000 to 35.8 in 2016. By 2045 the median age is expected to reach 39.7. Net migration to the region has also slowed over the last 30 years.

In terms of housing, new housing production has accelerated since the recession with over 40,000 new units permitted each year from 2015 to 2018. This is an increase above the 15,000 annual permits after the 2008 recession but still below the average of 80,000 new units permitted annually during the housing boom from 2002 to 2006.

### Regional Housing Needs Assessment (RHNA)

State Housing Law mandates that MPOs develop RHNA allocations based on the regional determination figure issued by the California Department of Housing and Community Development (HCD) as part of the process for updating local housing elements of the General Plan. The RHNA quantifies the housing need

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5 Southern California Association of Governments (SCAG), 2020-2045 Connect SoCal [2020 RTP/SCS] (adopted November 2019).

within each jurisdiction during specific planning periods and local governments use the RHNA allocations provided by the MPOs in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth. RHNA allocations are determined and updated every eight years to facilitate the update of Housing Elements on the local level every eight years. The eight years planning periods for RHNA allocation are defined as RHNA cycles with the latest update for 2021-2029 planning period considered the 6th RHNA allocation cycle. The 2021-2029 RHNA allocation considers the existing housing needs along with future housing needs which differs from previous RHNA allocation cycles that only considered future housing needs.

The State Housing law also states that the RHNA process shall be consistent with the following objectives:

- Increasing the housing supply and the mix of housing types, tenure, and affordability in all cities and counties within the region in an equitable manner, which shall result in all jurisdictions receiving an allocation of units for low- and very low-income households.
- Promoting infill development and socioeconomic equity, protecting environmental and agricultural resources, and encouraging efficient development patterns.
- Promoting an improved intraregional relationship between jobs and housing.
- Allocating a lower proportion of housing need to an income category when a jurisdiction already has a disproportionately high share of households in that income category.
- Affirmatively furthering fair housing.

On October 15, 2019, HCD issued a final regional determination of 1,341,827 units to the SCAG region for 2021 to 2029 planning period. As mandated by law, this number is further allocated by SCAG using a formula developed by the MPO to cities and counties within its region.

As shown in **Table 3.0-1: 2021-2029 Signal Hill RHNA Allocation**, the SCAG RHNA allocation for the City identified a housing need of 517 housing units with approximately 46 percent of the 517 units needed for very low- and low-income households. The RHNA allocation for Signal Hill includes 161 very low-income units, 78 low-income units, 90 moderate-income units, and 188 above moderate-income units.<sup>6</sup> The City is mandated by State Housing Element Law to demonstrate it has adequate sites available to accommodate this projected need for housing through the 2021-2029 RHNA planning period.

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6 SCAG. *6th Cycle Regional Housing Needs Assessment Estimate*, 10/1/2021 – 10/1/2029. <http://www.scag.ca.gov/programs/Documents/RHNA/Staff-Recommended-RHNA-Estimated-Allocations-030520.pdf> accessed March 4, 2021.

**Table 3.0-1**  
**2021-2029 Signal Hill RHNA Allocation**

Income Category	Units	Percent of Total
Very Low Income Units	161	31%
Low Income Units	78	15%
Moderate Income Units	90	17%
Above Moderate Income Units	188	36%
<b>Total Units</b>	<b>517</b>	<b>~100%</b>

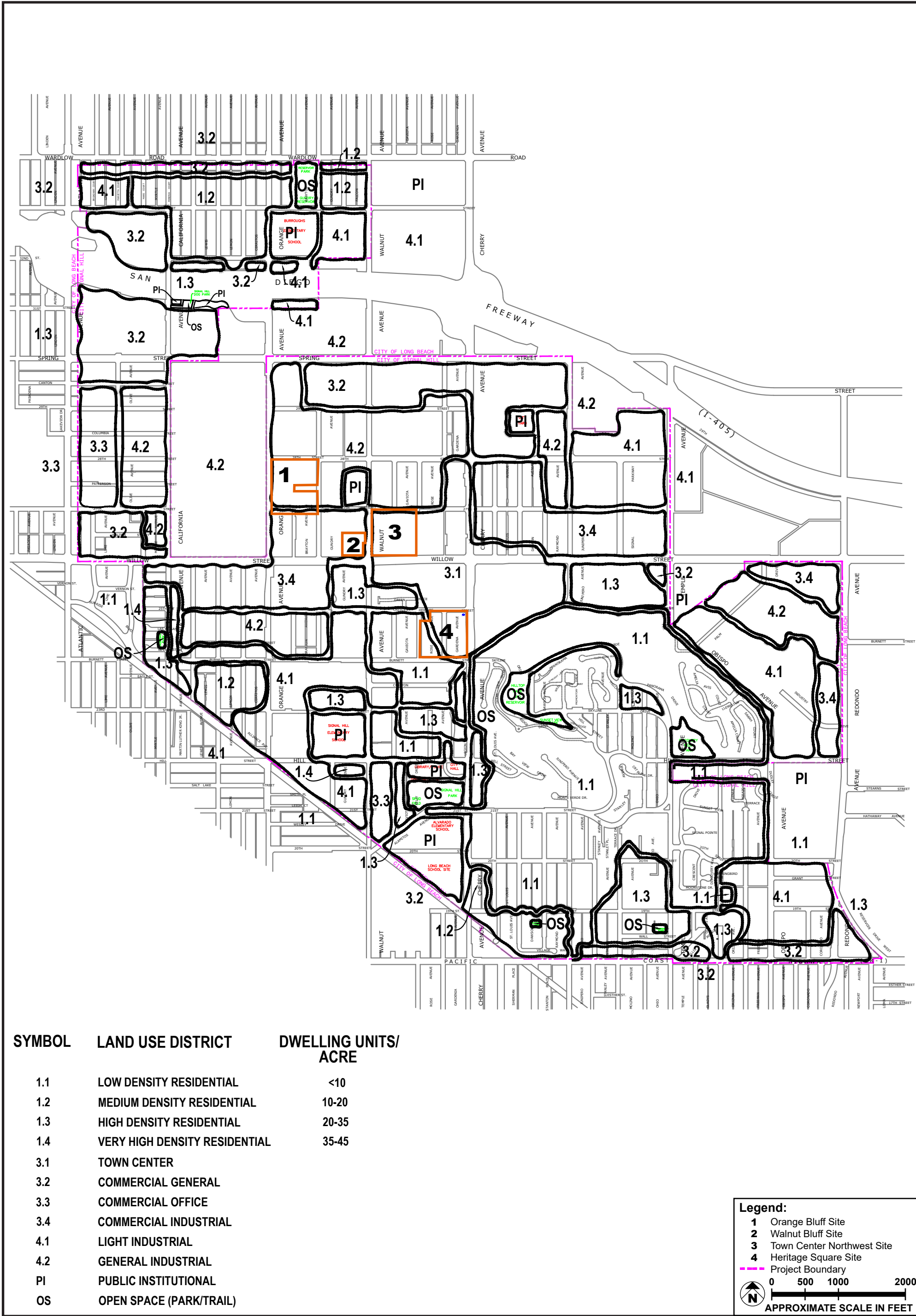
Source: SCAG. 6th Cycle Regional Housing Needs Assessment Final Allocation Plan.  
<https://scag.ca.gov/sites/main/files/file-attachments/6th-cycle-rhna-final-allocation-plan.pdf?1616462966>. Accessed May 2021.

Notes: Percentages are rounded to the closest whole number.

## Signal Hill General Plan

The Signal Hill General Plan includes the following six elements: Housing, Land Use, Circulation, Environmental Resources, Safety, and Noise. The Land Use Element identifies the distribution and intensity of uses within the City. There are three residential, six commercial and industrial, and two miscellaneous land use designations; open space and public institutional. A maximum dwelling unit density is specified for each of the three residential designations (Low, Medium and High Density). A mix of residential densities may be permitted in any area consistent with its residential land use description, but the maximum residential density shall not be exceeded within an area or in an individual development project.

As shown in **Figure 3.0-3: General Plan Designation Map** and **Table 3.0-2: General Plan Land Use Distribution**, the City has 11 defined land use designations. The table describes the zoning and specific plans/use supporting each of the land use designations. The purpose of each of the existing land use designations in the City is described in the text below which descriptions of the intended character for the new development, including the density or intensity of the new development.



SOURCE: Signal Hill City Maps, General Land Use Map - 2018

FIGURE 3.0-3

**Table 3.0-2**  
**General Plan Land Use Distribution**

Code No.	Land Use Designation	Zoning	Specific Plans/Use
1.1	Low Density Residential (<10 du/ac)	RL RLM-1 PD-2	SP-2: Hilltop Area SP-5: California Crown SP-9: Bixby Ridge SP-11: Crescent Heights
1.2	Medium Density Residential (10-20 du/ac)	RLM-2 CR	SP-8: Signal Hill Village Retail & Residential
1.3	High Density Residential (21-35 du/ac)	RH	SP-2: Area B-1 of Hilltop SP-7: Special Purpose House
3.1	Town Center	CTC	SP-1: Town Center SP-6: Commercial Corridor
3.2	Commercial General	CG	SP-4: Auto Center SP-10: Pacific Coast Highway
3.3	Commercial Office	CO	Commercial Office
3.4	Commercial Industrial	CI	Commercial Industrial
4.1	Light Industrial	LI	Light Industrial
4.2	General Industrial	GI	General Industrial
PI	Public Institutional	PI	Public Institutional
OS	Open Space	OS	Parks and Trails

*Source: City of Signal Hill General Plan-Land Use Element. 2001. Table 8-Land Use Distribution*

*\*Specific Plans/Use no longer part of the 2014 zoning map are removed. Certain zoning and specific plans/use are modified to match descriptions from the 2014 zoning map.*

## ***Residential Land Use Designations***

### **Low Density Residential (Less than 10 dwelling units per acre)**

The Low-Density Residential category allows single-family detached dwellings on individual lots, and in the Hilltop Area attached dwellings containing two to four units. Developed areas of the City that are designated as Low-Density Residential include California Crown located at Temple Avenue and 20th Street and portions of the Southeast Neighborhood located south of 21st Street.

### **Medium Density Residential (10 - 20 dwelling units per acre)**

The Medium-Residential Density land use category includes most land in the North End and West Side Neighborhoods that are largely developed with a mix of lower density single-family detached dwellings and medium density multifamily development. Vacant Medium-Residential Density land is found scattered among existing developed parcels.

### **High Density Residential (20 - 35 dwellings per acre)**

The High-Density Residential land use category provides opportunities for multifamily development including multistory condominiums and apartments. The High-Density Residential areas are located in the

Civic Center, West Side and Hilltop Neighborhoods where there are existing high-density residential developments.

## ***Commercial Land Use Designations***

### **Town Center**

The Town Center land use category is the commercial core of the City generally located at the intersection of Cherry Avenue and Willow Street. The Town Center category provides opportunity for large-scale retail stores, offices, entertainment and dining as well as neighborhood shopping centers. New development in the Town Center is guided by existing Town Center East and the Commercial Corridor Specific Plans and by the Willow/Spring/Cherry Landscape Overlay District. These plans and design guidelines promote orderly development, compatible land uses and cohesive design primarily through the design review procedure including architecture, landscape and sign plan review.

### **Commercial General**

The Commercial General land use category is characterized by a variety of miscellaneous retail and commercial service land uses including retail sales, automotive repair, restaurants, offices, day care, nursery, technical schools and convenience stores. The Commercial General areas are located along major arterial highways including Wardlow Road (where the City of Long Beach controls the frontage, zoning, and business licensing), Willow Street between Atlantic and California Avenues, Spring Street between Atlantic and California Avenues, and the Target shopping center located in the North End neighborhood at 33rd Street and California Avenue.

### **Commercial Office**

The Commercial Office land use category provides for the development of professional offices and related supportive retail and service commercial uses. Offices permitted by this category include finance, insurance, architecture, engineering, real estate, business support services, and medical or dental. New development in the Atlantic Avenue Commercial Office area should complement existing large-scale medical offices. The Commercial Office area located on Walnut Avenue south of Hill Street may provide opportunity for the enlargement of the adjacent existing office complex.

### **Commercial Industrial**

The Commercial Industrial category is intended to accommodate a combination of retail and Light Industrial uses. The designation applies to areas located along Willow Street and Cherry Avenue. The Commercial Industrial designation allows for mixed-use types of businesses such as manufacturing with retail sales of the manufactured product or warehousing with limited retail sales. Because the typical buildings in the Commercial Industrial category are designed and parked for Light Industrial use the appropriate uses should not overburden limited parking in the area, but should complement the retail

business along Willow Street and Cherry Avenue. Likewise, heavy industrial uses are not encouraged in the Commercial Industrial category.

### **Light Industrial**

The Light Industrial land use category is designed to accommodate a variety of Light Industrial uses which are nonpolluting, and which can coexist with surrounding commercial and residential uses. Development in the Light Industrial areas should complement the existing modern industrial park development with landscaped setbacks orderly parking lots, and high-quality design buildings. When Light Industrial development abuts commercial or residential development, special buffering or wall treatments should be incorporated into the design to minimize incompatibilities.

### **General Industrial**

The General Industrial land use category provides opportunities for Heavy Industrial uses that can coexist with adjacent Light Industrial and Commercial development. Conditionally permitted uses shall be required to demonstrate that they can operate safely and compatibly with surrounding existing and planned land uses and that they can mitigate environmental impacts. Certain heavy industrial uses are not permitted. The evaluation of conditionally permitted land uses in the General Industrial area shall consider how well the proposal addresses the aesthetic impacts on the surrounding community by incorporating landscaping, high quality architecture and setbacks into the site design.

### ***Open Space Land Use Designation***

The Open Space category includes public parks, trails and privately owned trails/enhanced walkways when the general public has access to the use of the trail/enhanced walkway recorded as a pedestrian easement.

### ***Public Institutional Land Use Designation***

The Public Institutional land use category is for public school sites; institutions, utility facilities and public buildings formerly included in the open space land use category. There are four existing school sites within the City far more than necessary to serve the neighborhood populations in vicinity of the schools. New Public Institutional development should reflect the public interest in high quality durable architecture and landscaping to complement existing surrounding development.

### **Signal Hill Municipal Code**

Municipal codes refer to a collection of laws passed by a local governing body such as a city. These laws are enforced locally in addition to State law and federal law and cannot conflict with existing State laws and federal laws. The City has a collection of laws and ordinances enacted on a local level which can be found within the Signal Hill Municipal Code. The Signal Hill Municipal Code includes topics pertaining to real estate development including Title 15-Buildings and Construction and Title 20-Zoning. Development

within the City limits must comply with the laws and ordinances included in the language of the municipal code.

## Zoning Code

The zoning code coordinate all existing zoning regulations and provisions into one comprehensive zoning plan in order to designate, regulate, and control the location and use of buildings, structures and land for residence, commerce, trade and industry or other purposes. The zoning code regulate the dimension, number of stores, and other related components of a building, structure, or land to ensure the most appropriate use of land and to protect and promote the health, safety, and general welfare of the public. As shown in **Table 3.0-3: Zoning Code**, the City has six commercial zoning codes, four residential zoning codes, and the Open Space and Commercial Residential codes.

**Table 3.0-3  
Zoning Code**

Zoning Code	Description
2RL	Residential Low Density
RLM-1	Residential Low/ Medium-1
RLM-2	Residential Low/ Medium-2
RH	Residential High Density
OS	Open Space
CR	Commercial Residential
CO	Commercial Office
CTC	Commercial Town Center
CG	Commercial General
CI	Commercial Industrial
LI	Light Industrial
GI	General Industrial

*Source: City of Signal Hill. Signal Hill Zoning Map. 2014.*

The zoning codes are supplemented by a number of specific plans and districts to be discussed in a later section. The 2021-2029 Housing Element update encompasses the entire city limits and will take into account all existing zoning and developmental uses. **Figure 3.0-4: Zoning Map** displays the geographic distribution of zoning codes within the City.





## Residential Zoning

Residential zoning primarily serving residential uses in the City are divided into four levels. The purpose of each type of zoning are described below.

**Residential Low Density (RL):** This zone is intended to provide for the orderly development and maintenance of low-density neighborhoods in accordance with the general plan. Permitted housing types include single-family detached dwellings and duplexes.

**Residential Low/Medium-1 (RLM-1):** This zone is intended to provide for the orderly development of low/medium density residential neighborhoods exclusively limited to small-lot subdivisions of single-family detached dwellings.

**Residential Low/Medium-2 (RLM-2):** This zone is intended to provide for the orderly development and maintenance of low/medium residential neighborhoods which include both single-family dwellings and duplexes.

**Residential High Density (RH):** This zone is intended to provide for the orderly development and maintenance of high-density residential neighborhoods in areas without physical constraints to such development and where infrastructure is adequate to support such development.

## Commercial Zoning

Commercial zoning primarily serving commercial uses in the City are divided into seven levels. The purpose of each type of zoning are described below.

**Commercial Residential:** This zone is intended to provide areas for the development of professional offices and limited commercial uses. Other permitted uses will include commercial offices, medical offices and hospitals.

**Commercial Office:** This zone is intended to provide areas for the development of professional offices and limited commercial uses. Other permitted uses will include commercial offices, medical offices and hospitals.

**Commercial Town Center:** This zone is intended to serve as a concentrated commercial core for the City. Retail outlets typical of community shopping centers or districts along with general retail uses and professional offices will be among the uses permitted in this district.

**Commercial General:** This zone is intended to provide for a wide variety of service and retail uses, many of which are highway-oriented. The portion of this district along Pacific Coast Highway should be treated with special zoning and development standards due to unique characteristics including, but not limited to small lot sizes, substantial existing nonconforming development, nonconforming and illegal sign proliferation, and lack of off-street parking.

**Commercial Industrial:** This zone is intended to provide for a wide variety of commercial uses and limited compatible Light Industrial uses. Commercial or industrial uses which might create offensive levels of noise, air pollution, glare, radioactivity or other nuisances shall be prohibited from this district.

**Light Industrial:** This zone is designed to accommodate a variety of Light Industrial uses which are nonpolluting and which can coexist with surrounding land uses. In addition, limited complimentary commercial uses shall be permitted.

**General Industrial:** This zone is intended to provide for the development of a variety of General Industrial and service uses which do not generate obnoxious or offensive impacts which might affect persons residing or conducting business in the City.

### **Specific Plans and Districts**

The purpose of specific plans is to facilitate the implementation of the general plan within designated areas of the City. For the purpose of organized and orderly development, the City is divided into districts in such number, shape, and area as may be deemed best suited to carry out the regulation and to provide for their enforcement. The City contains 19 specific plans within its boundaries. For the purpose of analysis, only specific plans applicable to the Housing Site areas are described below.

**Special Purpose Housing (SP-7) Specific Plan:** This specific plan includes six areas and primarily governs residential development uses. The specific plans outline development restrictions including density, height, setback, open space, and other restrictions to ensure orderly development and compatible uses with the City's General Plan goals.

**Crescent Heights Historic District (SP-11) Specific Plan:** This specific plan provides guidelines, concepts, regulations and conditions for relocating historically significant dwellings to the Crescent Heights Historic District, as well as guidelines for modifications to historic buildings and the new construction of dwellings that are compatible with the historic buildings in the district.

**Heritage Square/ Central Business District (SP-23) Specific Plan:** The City is preparing a new specific plan which includes part of the Heritage Square Housing Site. The City envisions the specific plan to include high-intensity, mixed-use commercial and residential development that could include retail shops, entertainment, fitness centers, fine and outdoor dining, professional or business offices and residential development. The Land Use Element states that high-density residential condominium flats or lofts may be part of a project in the Central Business District that provides, as part of the development, public amenities such as a town square, park, or public viewing area. The Land Use Element states that the Central Business District should serve the community as a venue for socializing, shopping, dining, and recreating in a high-quality, view-oriented urban environment. SP-23 will be designed in a manner that is compatible with adjacent land uses and consistent with the City's General Plan goals.

**Commercial Corridor Specific Plan (SP-6):** This specific plan envisions development of various parcels of land which are well-suited to large, single-tenant retail commercial uses because of their accessibility and visibility to users of adjoining major surface streets.

**Town Center Northwest (SP-21) Specific Plan:** The City is preparing a new specific plan which includes part of the Town Center Northwest Housing Site. This specific plan envisions a mixed used development of various parcels of land which are well suited for both retail commercial uses and residential uses. SP-21 will be designed in a manner that is compatible with adjacent land uses and consistent with the City's General Plan goals.

## 4.0 ENVIRONMENTAL ANALYSIS

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In accordance with Section 15126 of the State CEQA Guidelines, Section 4 provides an analysis of the direct and indirect environmental effects, as well as cumulative environmental effects, of the Project. The determination of whether an impact is significant has been made based on the physical conditions established at the time the NOP was published (CEQA Guidelines, Section 15125[a]).

The following environmental resources are assessed in this Section:

- Air Quality
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use Planning
- Noise
- Population and Housing
- Public Services
- Transportation & Traffic
- Tribal Cultural Resources

Each topical section contains a discussion of the environmental setting, regulatory framework, and potential impacts associated with the Project.

If potential significant impacts are identified, feasible mitigation measures are recommended. The analysis also includes a level of impact after the implementation of mitigation measures.

### 1. INTRODUCTION

This section of the Draft EIR evaluates the potential effects of the air emissions that would be generated by construction and operation of the Signal Hill Housing Element (Project), including the Candidate Housing Sites (Housing Sites). The analysis also addresses consistency of the Project with the air quality policies set forth within the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP) and the City of Signal Hill (City) General Plan. The analysis of air emissions generated by the Project focuses on whether the Project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Calculation worksheets, assumptions, and model outputs used in the analysis are included in **Appendix B: CalEEMod Air Quality Emission Output Files**.

### 2. ENVIRONMENTAL SETTING

#### Air Quality Background

The Project is located within the South Coast Air Basin (Air Basin), an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and San Diego County to the south. The Air Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the Coachella Valley area in Riverside County. The regional climate within the Air Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the Air Basin is primarily influenced by meteorology and a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry.

Air pollutant emissions within the Air Basin are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Examples of point sources are boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and produce many small emissions. Examples of area sources include residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hair spray. Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) designate air basins where air pollution levels exceed the State or federal ambient air quality standards (AAQS) as “nonattainment” areas. These pollutants are referred to as “criteria air pollutants” as a result of the specific standards, or criteria, that have been adopted for them. The federal and State standards have been set at levels considered safe to protect public health, including the health of “sensitive” populations, such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, an area is considered “unclassified.” Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Transportation conformity for nonattainment and maintenance areas is required under the federal Clean Air Act (CAA) to ensure federally supported highway and transit projects conform to the State Implementation Plan (SIP). The USEPA approved California’s SIP revisions for attainment of the 1997 8-hour ozone (O<sub>3</sub>) National AAQS for the Air Basin in October 2019.

Ambient air pollution can cause public health concerns and can contribute to increases in respiratory illness and death rates. Air pollution can affect the health of both adults and children. The adverse health effects associated with air pollution are diverse and include cardiovascular effects, premature mortality, respiratory effects, cancer, reproductive effects, neurological effects, and other health outcomes.<sup>1</sup>

### ***Criteria Air Pollutants and Health Effects***

The criteria air pollutants that are most relevant to current air quality planning and regulation in the Air Basin include, ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), respirable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb). In addition, volatile organic compounds (VOC) and toxics air contaminants (TACs) are a concern in the Air Basin but are not classified under AAQS.

The State and federal AAQS and their attainment status in the Air Basin for each of the criteria pollutants are summarized in **Table 4.1-1: Ambient Air Quality Standards and Attainment Status**. Under the federal standards, the Air Basin is currently designated as nonattainment for the O<sub>3</sub>, Pb, and PM<sub>2.5</sub> thresholds. Under the State standards the Air Basin is currently designated as nonattainment for the O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> thresholds.

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1 South Coast Air Quality Management District (SCAQMD), 2016 Air Quality Management Plan, Appendix I: Health Effects (March 2017), <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/appendix-i.pdf?sfvrsn=14>. Accessed July 2021.

**Table 4.1-1**  
**Ambient Air Quality Standards and Attainment Status**

Pollutant	Averaging Period	California		Federal	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O <sub>3</sub> )	1-hour	0.09 ppm (180 µg/m <sup>3</sup> )	Nonattainment	—	Nonattainment
	8-hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic mean	0.03 ppm (57 µg/m <sup>3</sup> )	Attainment	0.053 ppm (100 µg/m <sup>3</sup> )	Unclassified/ Attainment
	1-hour	0.18 ppm (339 µg/m <sup>3</sup> )		0.100 ppm (188 µg/m <sup>3</sup> )	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m <sup>3</sup> )	Attainment	9 ppm (10 mg/m <sup>3</sup> )	Unclassified/ Attainment
	1 hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )	
Sulfur Dioxide (SO <sub>2</sub> )	1 hour	0.25 ppm	Attainment	0.075 ppm	Attainment
	24 hours	0.04 ppm		—	
Lead (Pb)	30-day average	1.5 µg/m <sup>3</sup>	Attainment	—	Nonattainment
	Rolling 3-month average	—		0.15 µg/m <sup>3</sup>	
Respirable Particulate Matter (PM <sub>10</sub> )	24 hours	50 µg/m <sup>3</sup>	Nonattainment	150 µg/m <sup>3</sup>	Attainment
	Annual arithmetic mean	20 µg/m <sup>3</sup>		—	
Fine Particulate Matter (PM <sub>2.5</sub> )	24 hours	—	Nonattainment	35 µg/m <sup>3</sup>	Nonattainment
	Annual arithmetic mean	12 µg/m <sup>3</sup>		12 µg/m <sup>3</sup>	

Source: California Air Resources Board (CARB), Area Designations Maps/State and National, <http://www.arb.ca.gov/design/adm/adm.htm>. Accessed July 2021.

Note: ppm = parts per million; µg = micrometer; m<sup>3</sup> = cubic meter; mg = milligram.

Elevated concentrations of certain air pollutants in the atmosphere have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants. In the United States, such pollutants have been identified and are regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality. The following pollutants are regulated by the USEPA and are subject to emissions control requirements adopted by federal, State, and local regulatory agencies. These pollutants are referred to as “criteria air pollutants” as a result of the specific standards, or criteria, which have been adopted pertaining to them.

The EPA established the National Ambient Air Quality Standards (NAAQS) to “provide public health protection, including protecting the health of ‘sensitive’ populations such as asthmatics, children, and the



elderly,” allowing “an adequate margin of safety.” California Ambient Air Quality Standards (CAAQS) were “established to protect the health of the most sensitive groups in our communities” and “defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without any harmful effects on people or the environment.”<sup>2</sup> The characteristics of each criteria pollutant and their health effects are briefly described below.

### Ozone (O<sub>3</sub>)

O<sub>3</sub> is a highly reactive and unstable gas that is formed when reactive organic gases (ROGs), sometimes referred to as VOCs, and NO<sub>x</sub>, byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

According to USEPA, O<sub>3</sub> can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath. O<sub>3</sub> can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease.<sup>3</sup>

Long-term exposure to O<sub>3</sub> is linked to aggravation of asthma and is likely to be one of many causes of asthma development. Long-term exposures to higher concentrations of O<sub>3</sub> may also be linked to permanent lung damage, such as abnormal lung development in children.<sup>4</sup> According to CARB, inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms, and exposure to O<sub>3</sub> can reduce the volume of air that the lungs breathe in and cause shortness of breath.<sup>5</sup>

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2 California Air Resources Board (CARB), California Ambient Air Quality Standards, <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards>. Accessed July 2021.

3 US Environmental Protection Agency (USEPA), Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

4 USEPA, Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

5 USEPA, Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

USEPA states that people most at risk from breathing air containing O<sub>3</sub> include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers.<sup>6</sup> Children are at greatest risk from exposure to O<sub>3</sub> because their lungs are still developing and they are more likely to be active outdoors when O<sub>3</sub> levels are high, which increases their exposure.<sup>7</sup> According to CARB, studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to O<sub>3</sub> and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults.<sup>8</sup> Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults.

### **Carbon Monoxide (CO)**

CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Air Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

According to the USEPA, breathing air with a high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain and at very high levels, which are possible indoors or in other enclosed environments, CO can cause dizziness, confusion, unconsciousness and death.<sup>9</sup> Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease since these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina.

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6 USEPA, Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

7 USEPA, Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

8 USEPA, Health Effects of Ozone Pollution, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>. Accessed July 2021.

9 USEPA, Carbon Monoxide (CO) Pollution in Outdoor Air, <https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution>. Accessed July 2021.

According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain.<sup>10</sup> For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress; inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO.

### **Nitrogen Dioxide (NO<sub>2</sub>) and Nitrogen Oxides (NO<sub>x</sub>)**

NO<sub>2</sub> is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO), similar to O<sub>3</sub>. NO<sub>2</sub> is also a byproduct of fuel combustion. NO and NO<sub>2</sub> are collectively referred to as NO<sub>x</sub> and are major contributors to O<sub>3</sub> formation. NO<sub>2</sub> also contributes to the formation of PM<sub>10</sub>. High concentrations of NO<sub>2</sub> can cause breathing difficulties and there is some indication of a relationship between NO<sub>2</sub> and chronic pulmonary fibrosis. Some increase of bronchitis in children (2-3 years old) has been observed at concentrations below 0.3 ppm.

According to the USEPA, short-term exposures to NO<sub>2</sub> can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO<sub>2</sub> may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. According to CARB, controlled human exposure studies that show that NO<sub>2</sub> exposure can intensify responses to allergens in allergic asthmatics.<sup>11</sup>

In addition, a number of epidemiological studies have demonstrated associations between NO<sub>2</sub> exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses.<sup>12</sup> Infants and children are particularly at risk from exposure to NO<sub>2</sub> because they have disproportionately higher exposure to NO<sub>2</sub> than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration while in adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease.

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10 CARB, Carbon Monoxide & Health, <https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health>. Accessed July 2021.

11 CARB, Nitrogen Dioxide & Health, <https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health>. Accessed July 2021.

12 CARB, Nitrogen Dioxide & Health, <https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health>. Accessed July 2021.

CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO<sub>2</sub> and there is only limited information for NO and NO<sub>x</sub>, as well as large uncertainty in relating health effects to NO or NO<sub>x</sub> exposure.<sup>13</sup>

### **Particulate Matter (PM<sub>10</sub>) and Fine Particulate Matter (PM<sub>2.5</sub>)**

Particulate Matter (PM) consists of small liquid and solid particles floating in the air, including smoke, soot, dust, salts, acids, and metals and can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Sources of PM<sub>10</sub> emissions include dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, and wind-blown dust from open lands.<sup>14</sup> Sources of PM<sub>2.5</sub> emissions include combustion of gasoline, oil, diesel fuel, or wood. PM<sub>10</sub> and PM<sub>2.5</sub> may be either directly emitted from sources (primary particles) or formed in the atmosphere through chemical reactions of gases (secondary particles) such as SO<sub>2</sub>, NO<sub>x</sub>, and certain organic compounds.

A consistent correlation between elevated ambient respirable and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life span, and an increased mortality from lung cancer.

According to CARB, both PM<sub>10</sub> and PM<sub>2.5</sub> can be inhaled, with some depositing throughout the airways; PM<sub>10</sub> is more likely to deposit on the surfaces of the larger airways of the upper region of the lung, while PM<sub>2.5</sub> is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation.<sup>15</sup> Short-term (up to 24 hours duration) exposure to PM<sub>10</sub> has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits. The effects of long-term (months or years) exposure to PM<sub>10</sub> are less clear, although studies suggest a link between long-term PM<sub>10</sub> exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer.

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13 CARB, Nitrogen Dioxide & Health, <https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health>. Accessed July 2021.

14 CARB, Inhalable Particulate Matter and Health (PM<sub>2.5</sub> and PM<sub>10</sub>), <https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm>. Accessed July 2021.

15 CARB, Inhalable Particulate Matter and Health (PM<sub>2.5</sub> and PM<sub>10</sub>), <https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm>. Accessed July 2021.

Short-term exposure to PM<sub>2.5</sub> has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. Long-term exposure to PM<sub>2.5</sub> has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children.<sup>16</sup> According to CARB, populations most likely to experience adverse health effects with exposure to PM<sub>10</sub> and PM<sub>2.5</sub> include older adults with chronic heart or lung disease, children, and asthmatics. Children and infants are more susceptible to harm from inhaling pollutants such as PM<sub>10</sub> and PM<sub>2.5</sub> compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems.

### **Sulfur Dioxide (SO<sub>2</sub>) and Sulfur Oxides (SO<sub>x</sub>)**

Sulfur Dioxide (SO<sub>2</sub>) is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, as well as from chemical processes occurring at chemical plants and refineries. When SO<sub>2</sub> oxidizes in the atmosphere, it forms sulfates (SO<sub>4</sub>). Collectively, these pollutants are referred to as sulfur oxides (SO<sub>x</sub>).

According to the USEPA, short-term exposures to SO<sub>2</sub> can harm the human respiratory system and make breathing difficult.<sup>17</sup> According to CARB, health effects at levels near the State one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity and exposure at elevated levels of SO<sub>2</sub> (above 1 parts per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.<sup>18</sup> Children, the elderly, and those with asthma, cardiovascular disease, or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO<sub>2</sub>.<sup>19,20</sup>

### **Lead (Pb)**

Lead (Pb) occurs in the atmosphere as particulate matter and is also considered a TAC. The combustion of leaded gasoline is the primary source of airborne lead in the Air Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so the majority of such combustion emissions are associated with off-road vehicles. However, because leaded gasoline was emitted in large amounts from vehicles when leaded gasoline was used for on-road motor vehicles, Pb is present in many urban soils and can be

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16 CARB, Inhalable Particulate Matter and Health (PM<sub>2.5</sub> and PM<sub>10</sub>), <https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm>. Accessed July 2021.

17 USEPA, Sulfur Dioxide (SO<sub>2</sub>) Pollution, <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>. Accessed July 2021.

18 CARB, Sulfur Dioxide & Health, <https://ww2.arb.ca.gov/resources/sulfur-dioxide-and-health>. Accessed July 2021.

19 CARB, Sulfur Dioxide & Health, <https://ww2.arb.ca.gov/resources/sulfur-dioxide-and-health>. Accessed July 2021.

20 USEPA, Sulfur Dioxide (SO<sub>2</sub>) Pollution, <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>. Accessed July 2021.

resuspended in the air. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and the use of secondary Pb smelters.

Pb can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood. The Pb effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage.<sup>21</sup> Excessive Pb exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain.

While the SCAQMD CEQA Air Quality Handbook contains numerical indicators of significance for Pb, project construction and operation would not include sources of Pb emissions and would not exceed the numerical indicators for Pb. Unleaded fuel and unleaded paints have virtually eliminated Pb emissions from commercial land use projects.

### ***Volatile Organic Compounds (VOCs)***

VOCs include any compound of carbon, excluding CO, CO<sub>2</sub>, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. VOC emissions often result from the evaporation of solvents in architectural coatings. Reactive organic gases are any reactive compounds of carbon, excluding methane, CO, CO<sub>2</sub>, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. ROG emissions are generated from the exhaust of mobile sources.<sup>22</sup> Both VOCs and ROGs are precursors to ozone and the terms can be used interchangeably.<sup>23</sup>

### ***Toxic Air Contaminants (TACs)***

Toxic Air Contaminants (TACs) or hazardous air pollutants (HAPs), are defined by the USEPA as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. For consistency within this document they will be referred to as TACs. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline

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21 CARB, Lead & Health, <https://ww2.arb.ca.gov/resources/lead-and-health>. Accessed July 2021.

22 SCAQMD, Appendix A: Calculation Details for CalEEMod (October 2017), [http://www.aqmd.gov/docs/default-source/caleemod/02\\_appendix-a2016-3-2.pdf?sfvrsn=6](http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6). Accessed July 2021.

23 Both VOC and ROG are precursors to ozone so they are summed in the CalEEMod report under the header ROG. For the purposes of comparing the ROG value to a VOC significance threshold, the terms can be used interchangeably.

stations and dry cleaners, and motor vehicle exhaust. TACs may exist as PM<sub>10</sub> and PM<sub>2.5</sub> or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources. The emission of a TAC does not automatically create a health hazard. Other factors, such as the amount of the TAC, its toxicity, how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. Emissions of TACs into the air can be damaging to human health and to the environment. Human exposure to TACs at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. TACs deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.<sup>24</sup>

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a State law requiring facilities to report emissions of TACs to air districts.<sup>25</sup> The program is designed to quantify the amounts of potential TACs released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks. The Air Toxics "Hotspots" Program (AB 2588) identified over 200 TACs, including the 188 TACs identified in the CAA.<sup>26</sup>

The USEPA has assessed this expansive list and identified 21 TACs as Mobile Source Air Toxics (MSATs).<sup>27</sup> MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the nine priority MSATs: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (DPM)/diesel exhaust organic gases, ethylbenzene, naphthalene, and polycyclic organic matter (POM). While these nine MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.<sup>28</sup>

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24 USEPA, Hazardous Air Pollutants, <https://www.epa.gov/haps>. Accessed July 2021.

25 CARB, General Information About "Hot Spots." <https://www.arb.ca.gov/ab2588/general.htm>. Accessed July 2021.

26 CARB, AB 25188 Air Toxics "Hot Spots" Program. <https://www.arb.ca.gov/ab2588/ab2588.htm>. Accessed July 2021.

27 US Environmental Protection Agency, Air Toxics Risk Assessment Reference Library, Volume 1 Technical Resource Manual. April 2004.

28 US Department of Transportation Federal Highway Administration, Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.

## ***Diesel Exhaust***

According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines (i.e., Diesel Particulate Matter (DPM) differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances).

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban TACs, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra-fine diesel particulates are of the greatest health concern and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals, and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; on-road diesel engines of trucks, buses and cars and off-road diesel engines that include locomotives, marine vessels and heavy-duty equipment. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to DPM is breathing air that contains diesel exhaust. The fine and ultra-fine particles are respirable (similar to  $PM_{2.5}$ ), which means that they can avoid many of the human respiratory defense mechanisms and enter deeply into the lungs. Exposure to DPM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to only DPM, but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes chronic health effects as well as having cancer-causing potential.

DPM also contributes noncancer health effects in the same manner as  $PM_{2.5}$  exposure. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to noncancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.<sup>29</sup>

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29 CARB, Overview: Diesel Exhaust & Health, <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health>. Accessed July 2021.



## ***Gasoline Exhaust***

Similar to diesel exhaust, gasoline is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of the same TACs, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra-fine diesel particulates are of the greatest health concern and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Gasoline exhaust is primarily emitted from light-duty passenger vehicles. The compounds in the gas and particles phases can cause health effects from short- and long-term exposures similar to those described under the TAC and particulate matter discussions above.

## ***Visibility Reducing Particles***

Visibility-reducing particles are any particles in the atmosphere that obstruct the range of visibility by creating haze.<sup>30</sup> These particles vary in shape, size and chemical composition, and come from a variety of natural and manmade sources including windblown metals, soil, dust, salt, and soot. Other haze-causing particles are formed in the air from gaseous pollutant (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of fine PM, such as PM<sub>2.5</sub> and PM<sub>10</sub>, and are caused from the combustion of fuel. CARB's standard for visibility reducing particles is not based on health effects, but rather on welfare effects, such as reduced visibility and damage to materials, plants, forests, and ecosystems. The health impacts associated with PM<sub>2.5</sub> and PM<sub>10</sub> are discussed above under Particulate Matter.

## **Existing Air Quality Conditions**

### ***Regional Air Quality***

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Air Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography affect the accumulation and dispersion of pollutants throughout the Air Basin, making it an area of high pollution potential.

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30 CARB, Visibility Reducing Particles and Health, <https://ww2.arb.ca.gov/resources/vinyl-chloride-and-health>. Accessed July 2021.

The greatest air pollution throughout the Air Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Air Basin vary with location, season, and time of day. O<sub>3</sub> concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in Southern California. However, as discussed earlier, the Air Basin fails to meet the national standards for O<sub>3</sub> and PM<sub>2.5</sub> as well as the State standards for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

California Health and Safety Code section 39607(e) requires CARB to establish and periodically review area designation criteria. **Table 4.1-2: South Coast Air Basin Attainment Status (Los Angeles County)** provides a summary of the attainment status of the Los Angeles County portion of the Air Basin with respect to the federal and State standards.

As shown, the Air Basin is designated under federal or State ambient air quality standards as nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. It should be noted that air quality in the Air Basin has improved substantially over the years, primarily due to the impacts of air quality control programs at the federal, State and local levels. The O<sub>3</sub> and PM levels have fallen significantly compared to the worst years and are expected to continue to trend downward in the future despite increases in the economy and population in the Air Basin.<sup>31</sup>

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31 SCAQMD, 2016 Air Quality Management Plan(March 2017), <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan>. Accessed July 2021.

**Table 4.1-2**  
**South Coast Air Basin Attainment Status (Los Angeles County)**

Pollutant	Federal Standards	California Standards
O <sub>3</sub> (1-hour standard)	N/A <sup>a</sup>	Nonattainment
O <sub>3</sub> (8-hour standard)	Nonattainment – Extreme	Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
PM <sub>10</sub>	Attainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
Lead	Nonattainment <sup>b</sup>	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified

*Notes:*

N/A = not applicable

<sup>a</sup> The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

<sup>b</sup> Partial Nonattainment designation – Los Angeles County portion of the Air Basin only for near-source monitors.

Source: CARB, Area Designation Maps / State and National, <http://www.arb.ca.gov/design/adm/adm.htm>. Accessed July 2021.

## Local Air Quality

### Existing Pollutant Levels at Nearby Monitoring Stations

The SCAQMD has divided its jurisdictional territory of the Air Basin into 38 source receptor areas (SRAs), most of which have monitoring stations that collect air quality data. These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area. These geographical areas include urbanized regions, interior valleys, coastal areas, and mountains. The Housing Sites are within SRA 4, South Coastal Los Angeles County.<sup>32</sup> The nearest air monitoring station SCAQMD operates is located at 2425 Webster Street, Reseda.<sup>33</sup> This station monitors O<sub>3</sub>, NO<sub>2</sub> and PM<sub>10</sub>. **Table 4.1-3: Air Quality Monitoring Summary** summarizes published monitoring data from 2017 through 2019 the most recent 3-year period available. The data shows that during the past few years, the has PM<sub>10</sub> standards have been exceeded in SRA 4.

32 SCAQMD, General Forecast Areas and Air Monitoring Areas, map, <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>. Accessed July 2021.

33 SCAQMD, Quality Assurance Site Survey Report for Long Beach (Hudson), AQS ID 060374006, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-monitoring-network-plan/aaqmnp-hudson.pdf?sfvrsn=29>. Accessed July 2021.

**Table 4.1-3**  
**Air Quality Monitoring Summary**

Air Pollutant	Average Time (Units)	2017	2018	2019
Ozone (O <sub>3</sub> )	State Max 1 hour (ppm)	0.082	0.074	0.075
	Days > CAAQS threshold (0.09 ppm)	0	0	0
	National Max 8 hour (ppm)	0.068	0.063	0.064
	Days > NAAQS threshold (0.07 ppm)	0	0	0
	State Max 8 hour (ppm)	0.069	0.064	0.065
	Days > CAAQS threshold (0.07 ppm)	0	0	0
Carbon monoxide (CO)		—	—	—
Nitrogen dioxide (NO <sub>2</sub> )	National Max 1 hour (ppm)	0.090	0.085	0.072
	Days > NAAQS threshold (0.100 ppm)	0	0	0
	State Max 1 hour (ppm)	0.089	0.085	0.071
	Days > CAAQS threshold (0.18 ppm)	0	0	0
Respirable particulate matter (PM <sub>10</sub> )	National Max (µg/m <sup>3</sup> )	79.0	84.0	155.8
	National Annual Average (µg/m <sup>3</sup> )	33.5	32.7	29.7
	Days > NAAQS threshold (150 µg/m <sup>3</sup> )	0	0	1
	State Max (µg/m <sup>3</sup> )	79.0	83.0	155.4
	State Annual Average (µg/m <sup>3</sup> )	—	32.5	29.5
	Days > CAAQS threshold (50 µg/m <sup>3</sup> )	10	4	4
Fine particulate matter (PM <sub>2.5</sub> )		—	—	—

Source: CARB, iADAM: Air Quality Data Statistics.

Note: (—) = Data not available.

### Existing Health Risk in the Surrounding Area

SCAQMD has prepared an Air Basin-wide air toxics study, the Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV).<sup>34</sup> The MATES-IV Study estimates the cancer risk from toxic air emissions throughout the Air Basin by conducting a comprehensive monitoring program, providing an updated emissions inventory of toxic air contaminants, and a modeling effort to fully characterize health risks for those living in the Air Basin. The MATES-IV Study concluded that the average carcinogenic risk from air pollution in the Air Basin is approximately 420 in one million over a 70-year duration. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 68 percent of the risk is attributed to diesel particulate emissions, approximately 21 percent to other toxics associated with mobile sources (including benzene, butadiene, and carbonyls), and approximately 11 percent of all carcinogenic risk is attributed to stationary sources (which include large industrial operations, such as

34 SCAQMD, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV) Final Report, <https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv>. Accessed July 2021.

refineries and metal processing facilities, as well as smaller businesses, such as gas stations and chrome plating).

As part of the MATES-IV Study, SCAQMD prepared a series of maps that shows regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of an ongoing effort to provide insight into relative risks. The estimates provided in these maps represent the cancer risk per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The MATES-IV map is the most recently available map to represent existing conditions near the Project area. Based on the Mates-IV map, the Housing Sites are located within a cancer risk zone of approximately 1,390 in one million.<sup>35</sup> The cancer risk in this area is predominantly related to nearby sources of diesel particulate (e.g., Interstates 405 and 710). The risk at the Housing Sites is comparable with other urbanized areas in the Signal Hill area.

### Sensitive Receptors

Some receptors are considered more sensitive to air pollutants than others, because of preexisting health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential areas are also considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution because vigorous exercise associated with recreation places having a high demand on respiratory system function. CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups. **Table 4.1-4: Sensitive Receptors per Housing Site** details the location and distance of the sensitive receptors within 500 feet of the Housing Sites.

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35 SCAQMD, MATES IV Web Map, <https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv>. Accessed July 2021.

**Table 4.1-4**  
**Sensitive Receptors per Housing Site**

Housing Site	Sensitive Receptors within 500 Feet	Distance from Site
Orange Bluff	Recreational use to the west along Orange Avenue	55 Feet
Walnut Bluff	Residential uses to the south along E. Willow Street	100 Feet
	Recreational use to the south along E. Willow Street	215 Feet
Town Center Northwest	Residential uses to the south along E. Willow Street	170 Feet
	Residential uses to the south along Crescent Heights Street	430 Feet
Heritage Square	Residential uses to the west along Rose Avenue	30 Feet
	Residential uses to the north along Crescent Heights Street	175 Feet

### 3. REGULATORY SETTING

#### Federal

##### *Clean Air Act*

The USEPA is responsible for the implementation of portions of the CAA<sup>36</sup> of 1970, which regulates certain stationary and mobile sources of air emissions and other requirements. Charged with handling global, international, national, and interstate air pollution issues and policies, the USEPA sets national vehicle and stationary source emission standards, oversees the approval of all State Implementation Plans,<sup>37</sup> provides research and guidance for air pollution programs, and sets NAAQS.<sup>38</sup> NAAQS for the six common air pollutants (O<sub>3</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>, NO<sub>2</sub>, CO, Pb, and SO<sub>2</sub>) are identified in the CAA.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA that are most applicable to the Air Basin include Title I, Nonattainment Provisions, and Title II, Mobile Source Provisions.

The NAAQS were also amended in July 1997 to include an 8-hour standard for O<sub>3</sub> and to adopt a NAAQS for PM<sub>2.5</sub>. The NAAQS were amended in September 2006 to include an established methodology for calculating PM<sub>2.5</sub> and to revoke the annual PM<sub>10</sub> threshold. The CAA includes the following deadlines for

<sup>36</sup> 42 U.S.C § 7401, et seq.

<sup>37</sup> A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain National Ambient Air Quality Standards (NAAQS).

<sup>38</sup> The NAAQS were established to protect public health, including that of sensitive individuals; for this reason, the standards continue to change as more medical research becomes available regarding the health effects of the criteria pollutants. The primary NAAQS define the air quality considered necessary, with an adequate margin of safety, to protect the public health.

meeting the NAAQS within the Air Basin: (1) 24-hour  $PM_{2.5}$  by the year 2019, which has not been updated since the adoption of the 2016 AQMP and (2) 8-hour  $O_3$  by the year 2024. In addition, more stringent area requirements now apply including implementation of Best Available Control Measures/Best Available Control Technology (BACM/BACT), a lower major source threshold (from 100 tons per year to 70 tons per year), and an update to the reasonable further progress (RFP) analysis.<sup>39</sup>

## State

### ***California Clean Air Act***

The California CAA, signed into law in 1988, requires all areas of the State to achieve and maintain the California AAQS by the earliest practicable date. CARB, a part of the CalEPA, is responsible for the coordination and administration of both State and federal air pollution control programs within California. In this capacity, CARB conducts research, sets State AAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions and the CAAQS currently in effect for each of the criteria pollutants, as well as other pollutants recognized by the State. The CAAQS include more stringent standards than the NAAQS.

### ***California Air Toxics Program***

The California Air Toxics Program was established in 1983, when the California Legislature adopted Assembly Bill (AB) 1807 to establish a two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances in the air. In the risk identification step, CARB and the OEHHA determine if a substance should be formally identified, or “listed,” as a TAC. Since inception of the program, a number of such substances have been listed. In 1993, the California Legislature amended the program to identify the 189 federal hazardous air pollutants (HAPs) as TACs. In 1999, CARB completed the final staff report, *Update to the Toxic Air Contaminant List*. The list represented the priorities for identifying and regulating substances as directed by State law. The report described the process followed by CARB in reviewing and revising the TAC List and presented changes to the list.

In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on results of that review, CARB has promulgated a number of airborne toxic control measures (ATCMs), both for mobile and stationary sources. In 2004,

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39 SCAQMD, Final 2016 Air Quality Management Plan (2017), <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>. Accessed July 2021.

CARB adopted an ATCM to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to DPM and other TACs (see below for additional information).

### ***Air Toxics “Hotspots” Program (AB 2588)***

AB 2588 was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The Air Toxics program’s goals include collecting emission data, identifying facilities having localized impacts, ascertaining health risks, notifying nearby residents of significant risks, and reducing those significant risks to acceptable levels. The Air Toxics program provides direction and criteria to facilities on how to compile and submit air toxic emission data required by the “Hot Spots” Program, and requires the local air district to prioritize facilities to determine which facilities must perform a health risk assessment. Facilities identified as high risk are required to reduce their toxic emissions to acceptable levels as determined by the local air district.<sup>40</sup>

### ***Air Quality and Land Use Handbook***

CARB published the *Air Quality and Land Use Handbook*<sup>41</sup> on April 28, 2005, to serve as a general guide for considering health effects associated with siting sensitive receptors proximate to sources of TAC emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions.

Some examples of CARB’s siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural road with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 50 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operations with two or more machines.

### ***California Code of Regulations***

The California Code of Regulations (CCR) includes regulations that pertain to air quality emissions. Specifically, 13 Cal. Code of Regs. § 2485 limits idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction to 5 minutes at any location. Additionally, 17 Cal. Code of Regs.

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40 CARB, AB 2588 Air Toxics “Hot Spots” Program, <http://www.arb.ca.gov/ab2588/ab2588.htm>. Accessed July 2021.

41 CARB, Air Quality and Land Use Handbook: A Community Health Perspective (April 2005), <https://www.arb.ca.gov/ch/handbook.pdf>. Accessed July 2021.



§ 93115 requires operation of any stationary, diesel-fueled, compression-ignition engines meet specified fuel and fuel additive requirements and emission standards.

### ***California Motor Vehicle Code***

The vehicle programs are a critical component in the SIP for achieving national ambient air quality standards in the South Coast.<sup>42</sup> They are also integral in CARB's Scoping Plan<sup>43</sup> to achieve the greenhouse gas (GHG) emission reduction goals that were established through the California legislation and Executive Orders.

### ***Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13 of the California Code of Regulations, Section 2485)***

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling<sup>44</sup> measure includes regulations that pertain to air quality emissions. Specifically, Section 2485 states that the idling of all diesel-fueled commercial vehicles weighing more than 10,000 pounds shall be limited to five minutes at any location. In addition, Section 93115 in Title 17 of the CCR<sup>45</sup> states that operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

### ***CARB Rule 2449, General Requirements for In-Use Off-Road Diesel-Fueled Fleets***

CARB Rule 2449 requires off-road diesel vehicles to limit nonessential idling to no more than five consecutive minutes.<sup>46</sup>

### ***California Building Standards Code***

#### ***California Energy Code***

California's Energy Efficiency Standards for Residential and Nonresidential Buildings<sup>47</sup> were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 requires

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42 CARB, "California State Implementation Plans" (last reviewed September 21, 2018), <https://www.arb.ca.gov/planning/sip/sip.htm>. Accessed July 2021.

43 CARB, AB 32 Scoping Plan (January 8, 2018), <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>. Accessed July 2021.

44 CARB, Section 2485 in Title 13 of the CCR, [https://www.arb.ca.gov/msprog/truck-idling/13ccr2485\\_09022016.pdf](https://www.arb.ca.gov/msprog/truck-idling/13ccr2485_09022016.pdf). Accessed July 2021.

45 CARB, Final Regulation Order: Amendments to the Airborne Toxic Control Measure For Stationary Compression Ignition Engines (May 19, 2011), <https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>. Accessed July 2021.

46 CARB, Final Regulation Order: Regulation For In-Use Off-Road Diesel-Fueled Fleets, <https://ww2.arb.ca.gov/our-work/programs/use-road-diesel-fueled-fleets-regulation>. Accessed July 2021.

47 California Energy Commission, 2019 Building Energy Efficiency Standards, <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>. Accessed July 2021.

the design of building shells and components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

The California Energy Commission (CEC) adopted the Title 24 standards as well as the 2019 Title 24 standards, which became effective on January 1, 2020, and are applicable to the proposed Project.<sup>48</sup> The 2019 standards will continue to improve upon prior Title 24 standards for new construction of, and additions and alterations to, residential and nonresidential buildings.<sup>49</sup>

### **California Green Building Code**

The California Green Building Standards Code, which is Part 11 of the CCR, is commonly referred to as the CALGreen Code.<sup>50</sup> The most current version of the CALGreen building code went into effect in January 2020. The purpose is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, outdoor lighting standards, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

## **Regional**

### ***South Coast Air Quality Management District***

The Project limits and Housing Sites lie within the jurisdiction of the SCAQMD, and compliance with SCAQMD rules and guidelines is required. SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD, in coordination with the Southern California Association of Governments (SCAG), is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the Air Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as “nonattainment” of the national and/or California AAQS. The term “nonattainment area” is used to refer to an air basin in which one or more AAQS are exceeded.

The SCAQMD approved a Final 2016 AQMP on March 3, 2017.<sup>51</sup> The 2016 AQMP includes transportation control measures developed by SCAG from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), as well as the integrated strategies and measures needed to meet the

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48 See California Energy Commission, 2019 Building Energy Efficiency Standards for additional information.

49 See California Energy Commission, 2019 Building Energy Efficiency Standards for additional information.

50 California Buildings Standards Commission, California Green Building Standards Code (Cal. Code Regs., Title 24, Part 11), <http://www.bsc.ca.gov/Home/CALGreen.aspx>. Accessed July 2021.

51 SCAQMD, Final 2016 Air Quality Management Plan (2017), <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>. Accessed July 2021.

NAAQS. The 2016 AQMP demonstrates attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual PM<sub>2.5</sub> standards.

Under the Federal CAA, SCAQMD has adopted federal attainment plans for O<sub>3</sub> and PM<sub>10</sub>. The SCAQMD reviews projects to ensure that they would not (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay the timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the Air Basin by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board. These rules and regulations limit the emissions that can be generated by various uses or activities and identify specific pollution reduction measures, which must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and State criteria pollutants, but also toxic air contaminants and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

Among the SCAQMD rules applicable to the proposed Project are Rule 212 (Standards for Approving Permits and Issuing Public Notice), Rule 403 (Fugitive Dust), Rule 1113 (Architectural Coatings), Rule 1401 (New Source Review of Toxic Air Contaminants), and Regulation XIII (New Source Review). Rule 212 states that the Executive Officer has the power to deny a Permit to Construct or Permit to Operate based on standard operating procedures and required notifications. Rule 403 requires the use of stringent best available control measures to minimize PM<sub>10</sub> emissions during grading and construction activities. Rule 1113 requires reductions in the VOC content of coatings, with a substantial reduction in the VOC content limit for specified types of coatings. Rule 1401 requires limits for maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants. Regulation XIII requires new on-site facility nitrogen dioxide emissions to be minimized through the use of emission control measures (e.g., use of best available control technology for new combustion such as boilers, emergency generators, and water heaters).

### ***CEQA Air Quality Handbook***

In 1993, the SCAQMD prepared its *CEQA Air Quality Handbook* (CEQA Handbook) to assist local government agencies and consultants in preparing environmental documents for projects subject to

CEQA.<sup>52</sup> The SCAQMD is in the process of developing its *Air Quality Analysis Guidance Handbook* (Guidance Handbook) to replace the CEQA Handbook. The CEQA Handbook and the Guidance Handbook describe the criteria that SCAQMD uses when reviewing and commenting on the adequacy of environmental documents. Although the Guidance Handbook is still being prepared, the Guidance Handbook provides the most up-to-date recommended thresholds of significance in order to determine if a project will have a significant adverse environmental impact. SCAQMD provides additional supplementation information including methodologies for estimating project emissions and mitigation measures that can be implemented to avoid or reduce air quality impacts on the Guidance Handbook website. Although the Governing Board of the SCAQMD has adopted the CEQA Handbook and is in the process of developing the Guidance Handbook, the SCAQMD does not, nor intends to, supersede a local jurisdiction's CEQA procedures.<sup>53</sup>

### ***Southern California Association of Governments***

SCAG is the metropolitan planning organization (MPO) for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally-designated MPO for the Southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, and air quality. Pursuant to California Health and Safety Code Section 40460(b),<sup>54</sup> SCAG has the responsibility for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. SCAG is also responsible under the CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

With regard to air quality planning, SCAG has prepared and adopted the 2020–2045 RTP/SCS,<sup>55</sup> which includes a SCS that addresses regional development and growth forecasts. The SCAG 2020–2045 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals, with a specific goal of achieving an 8 percent reduction in

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52 SCAQMD, *Air Quality Analysis Guidance Handbook*, <http://www.aqmd.gov/CEQA/hdbk.html>. Accessed July 2021.

53 SCAQMD, *Frequently Asked CEQA Questions*, <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/frequently-asked-questions>. Accessed July 2021.

54 California Health and Safety Code, Division 26. Air Resources, PART 3. Air Pollution Control Districts, Chapter 5.5. South Coast Air Quality Management District, ARTICLE 5. Plan, Section 40460(b). [https://leginfo.ca.gov/faces/codes\\_displaySection.xhtml?sectionNum=40460.&lawCode=HSC](https://leginfo.ca.gov/faces/codes_displaySection.xhtml?sectionNum=40460.&lawCode=HSC). Accessed July 2021.

55 Southern California Association of Governments (SCAG), *Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft*, <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>. Accessed July 2021.

passenger vehicle GHG emissions on a per capita basis by 2020, 19 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level. Although the RTP/SCS is not technically an air quality plan, consistency with the RTP/SCS has air quality implications, including the reduction of VMT which reduces air quality emissions.

## 4. ENVIRONMENTAL IMPACTS

### *Thresholds of Significance*

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to air quality if it would:

- |                        |  |
|------------------------|--|
| <b>Threshold AQ-1:</b> | <b>Conflict with or obstruct implementation of the applicable air quality plan?</b>  |
| <b>Threshold AQ-2:</b> | <b>Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?</b> |
| <b>Threshold AQ-3:</b> | <b>Expose sensitive receptors to substantial pollutant concentrations?</b>   |
| <b>Threshold AQ-4:</b> | <b>Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?</b>  |

The following criteria was used to evaluate air quality impacts:

### **SCAQMD's CEQA Air Quality Handbook**

Because of the SCAQMD's regulatory role in the Air Basin, the significance thresholds and analysis methodologies in the SCAQMD's *CEQA Air Quality Handbook*.<sup>56</sup> are used in evaluating project impacts for construction, operations, and air toxics.<sup>57</sup>

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<sup>56</sup> SCAQMD, Air Quality Analysis Guidance Handbook, <http://www.aqmd.gov/CEQA/hdbk.html>. Accessed July 2021.

<sup>57</sup> SCAQMD Air Quality Significance Thresholds, <http://www.aqmd.gov/ceqa/hdbk.html>. Accessed July 2021.

### **Daily Emissions Thresholds**

SCAQMD has identified thresholds to determine the significance of regional air quality emissions for construction activities and project operation, as shown in **Table 4.1-5: Mass Daily Emissions Thresholds**.

### **Localized Significance Thresholds**

The local significance thresholds (LST) are based on the SCAQMD's Final *Localized Significance Threshold Methodology* (LST Methodology)<sup>58</sup> guidance document for short-duration construction activities. The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of a project site because of construction activities. The SCAQMD provides voluntary guidance on the evaluation of localized air quality impacts to public agencies conducting environmental review of projects located within its jurisdiction. Localized air quality impacts are evaluated by examining the on-site generation of pollutants and their resulting downwind concentrations. For construction, pollutant concentrations are compared to significance thresholds for particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), CO, and NO<sub>2</sub>. The significance threshold for PM<sub>10</sub> represents compliance with SCAQMD Rule 403 (Fugitive Dust). The threshold for PM<sub>2.5</sub> is designed to limit emissions and to allow progress toward attainment of the AAQS. Thresholds for CO and NO<sub>2</sub> represent the allowable increase in concentrations above background levels that would not cause or contribute to an exceedance of their respective AAQS.

The LST Methodology provides lookup tables of emissions that are based on construction projects of up to 5 acres in size. These LST Methodology lookup tables were developed to assist lead agencies with a simple tool for evaluating the impacts from small typical projects. The Walnut Bluff site is 2 acres in size, while the remaining Housing Sites are over 5 acres. Specifically, the Orange Bluff, Town Center Northwest, and Heritage Square sites are 9.2, 8.3, and 8.8 acres in size, respectively. However, based on the grading equipment assumed for these three sites, the maximum amount of ground disturbance that could occur on a daily basis is approximately 2.5 acres.<sup>59</sup> As such, the LST's for a 2.5-acre site with receptors located within 25 meters, as recorded in SRA 4 was assumed for the Orange Bluff, Town Center Northwest, and Heritage Square sites. Thresholds for each criteria pollutant for construction activity and operation of each Housing Site are listed in **Table 4.1-6: Localized Significance Thresholds**.

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<sup>58</sup> SCAQMD, Final Localized Significance Threshold (LST) Methodology, <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>. Accessed July 2021.

<sup>59</sup> CAPCOA, CalEEMod User Guide, Version 2020.4.0.

**Table 4.1-5**  
**Mass Daily Emissions Thresholds**

Pollutant	Construction	Operation
	Significant Threshold (pounds/day)	
Volatile organic compounds (VOCs)	75	55
Nitrogen dioxide (NO <sub>x</sub> )	100	55
Carbon monoxide (CO)	550	550
Sulfur dioxide (SO <sub>x</sub> )	150	150
Respirable particulate matter (PM <sub>10</sub> )	150	150
Fine particulate matter (PM <sub>2.5</sub> )	55	55

Source: SCAQMD, SCAQMD Air Quality Significance Thresholds, <http://www.aqmd.gov/ceqa/hdbk.html>. Accessed July 2021.

**Table 4.1-6**  
**Localized Significance Thresholds per Housing Site**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Housing Site	pounds/day			
<b>Orange Bluff<sup>a</sup></b>				
Construction	85	947	8	5
Operation	85	947	2	1
<b>Walnut Bluff<sup>b</sup></b>				
Construction	82	842	7	5
Operation	82	842	2	1
<b>Town Center Northwest<sup>c</sup></b>				
Construction	85	947	8	5
Operation	85	947	2	1
<b>Heritage Square<sup>d</sup></b>				
Construction	85	947	8	5
Operation	85	947	2	1

Notes:

<sup>a</sup> Based on a maximum disturbance area of 2.5-acres and a distance to sensitive receptors of 25 meters (82 feet).

<sup>b</sup> Based on a 2-acre site and a distance to sensitive receptors of 25 meters (82 feet).

<sup>c</sup> Based on a maximum disturbance area of 2.5-acres and a distance to sensitive receptors of 25 meters (82 feet).

<sup>d</sup> Based on a maximum disturbance area of 2.5-acres and a distance to sensitive receptors of 25 meters (82 feet).

## Construction Emissions

In addition to the mass daily thresholds, a project is considered to result in a significant construction air quality impact if the project exceeds the concentration significance thresholds set forth in **Table 4.1-7: Ambient Air Quality Significance Thresholds for Criteria Pollutants**. Per SCAQMD guidance, the evaluated concentrations of CO, NO<sub>2</sub>, and SO<sub>2</sub> includes both the project contribution plus background concentrations. The total concentration is then compared to the significance thresholds. For CO, NO<sub>2</sub>, and SO<sub>2</sub>, these significance thresholds are reflective of the CAAQS and NAAQS. Background concentrations were based on existing air monitoring stations near the proposed Project and represent existing air emissions sources within the SCAB. Per SCAQMD guidance, the proposed Project's contribution of PM<sub>10</sub> and PM<sub>2.5</sub> is compared to the significance thresholds without adding background concentrations.

**Table 4.1-7**  
**Ambient Air Quality Significance Thresholds for Criteria Pollutants**

Pollutant	Averaging Period	Pollutant Concentration Threshold
CO	1-hour /8-hour	SCAQMD is in attainment (Federal and State); project is significant if it causes or contributes to an exceedance of the attainment standards of 20 ppm (1-hour) and 9 ppm (8-hour)
NO <sub>2</sub>	1-hour	SCAQMD is in attainment (Federal and State); project is significant if it causes or contributes to an exceedance of the following attainment standard 0.18 ppm (State)
	Annual	0.03 ppm (State) and 0.0534 ppm (federal)
PM <sub>10</sub>	24-hour	10.4 µg/m <sup>3</sup> (construction) and 2.5 µg/m <sup>3</sup> (operation)
	Annual	1.0 µg/m <sup>3</sup> (construction and operation)
PM <sub>2.5</sub>	24-hour	10.4 µg/m <sup>3</sup> (construction) and 2.5 µg/m <sup>3</sup> (operation)
SO <sub>2</sub>	1-hour	0.25 ppm (State) and 0.075 ppm (federal)
	24-hour	0.04 ppm (State)
Lead	30-day Average	1.5 µg/m <sup>3</sup> (State)
	Rolling 3-month Average	0.15 µg/m <sup>3</sup> (Federal)

Source: SCAQMD, SCAQMD Air Quality Significance Thresholds, <http://www.aqmd.gov/ceqa/hdbk.html>. Accessed July 2021.

## Operational Emissions

In addition to the mass daily thresholds above, a project would normally have a significant impact on air quality from project operations if any of the following would occur:

- Operational emissions were to exceed 10 tons per year of VOCs or any of the daily thresholds presented above in **Table 4.1-5** (as reprinted from the CEQA Air Quality Handbook).



- Either of the following conditions would occur at an intersection or roadway within one-quarter mile of a sensitive receptor:
  - The project causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 parts per million (ppm), respectively; or
  - The incremental increase due to the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard, or 0.45 ppm for the 8-hour CO standard.
- The project creates an objectionable odor at the nearest sensitive receptor.

### ***Health Risk Assessment (Toxic Air Contaminants)***

Per the SCAQMD, a project would result in a significant health impact if the carcinogenic or toxic air contaminants individually or cumulatively are equal to or exceed the maximum individual cancer risk of ten in one million persons or a chronic and acute hazard index of 1.0, or the cancer burden of 0.5 excess cancer cases (in areas greater than or equal to one in one million).

### ***Consistency with Applicable Plans and Policies***

Section 15125 of the State CEQA Guidelines<sup>60</sup> requires the EIR to identify any inconsistencies with applicable governmental plans and policies. The proposed Project's consistency analysis addresses consistency with the SCAQMD's AQMP<sup>61</sup> and the 2020-2045 SCAG RTP/SCS.<sup>62</sup>

## **5. METHODOLOGY**

Air pollutant emissions associated with the individual Housing Sites would result from construction and operation of the proposed uses. Specific analysis methodologies for all Project related sources of air emissions are discussed below.

### **Emissions Inventory Modeling**

The California Emissions Estimator Model, known as CalEEMod, is the CARB-approved computer program model recommended by SCAQMD for use in the quantification of air quality emissions. CalEEMod was developed under the auspices of SCAQMD, with input from other California air districts. CalEEMod utilizes widely accepted models for emissions estimates combined with appropriate data that can be used if site-specific information is not available. For example, CalEEMod incorporates USEPA-developed emission

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<sup>60</sup> State CEQA Guidelines, Section 15125.

<sup>61</sup> SCAQMD, *Final 2016 Air Quality Management Plan (2017)*, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>. Accessed July 2021.

<sup>62</sup> Southern California Association of Governments (SCAG), *Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Final Plan*, <https://www.connectsocial.org/Pages/Connect-SoCal-Final-Plan.aspx>. Accessed July 2021.

factors; CARB's on-road and off-road equipment emission models, such as EMFAC and OFFROAD;<sup>63</sup> and studies commissioned by other California agencies, such as the California Energy Commission and California Department of Resources Recycling and Recovery (CalRecycle).

CalEEMod provides a platform to calculate both construction emissions and operational emissions from a land use development project. CalEEMod version 2020.0.4 was used to quantify the proposed Project's air quality pollutants. Project development would generate air pollutants from a number of individual sources during both construction and post-construction (operational) use of the buildings and related activities (e.g., painting operations and landscape maintenance). The following emission sources covered by CalEEMod model include:

- One-time construction emissions associated with site clearing and demolition, grading, construction of the retaining walls, utilities, water tank, and landscaping. Emission sources include both off-road construction equipment and on-road mobile equipment associated with workers and the delivery of construction materials to the Housing Sites. Construction emissions associated with dust control and disposal of waste at landfills are also included in the CalEEMod model.
- Operational emissions associated with the proposed uses, including on-road mobile vehicle traffic generated by the land uses; off-road emissions from landscaping equipment; energy (i.e., electricity and natural gas) and water usage in the buildings; and emissions from emergency generators, painting operations, and fuel use. The disposal of solid waste generated during the postconstruction use of the buildings is also included in the CalEEMod model.

## Construction

**Table 4.1-8: Project Construction Schedule** provides the construction dates and durations for each of the Housing Sites. The order of development for the Housing Sites is currently undetermined. As such, it was conservatively assumed any of the Housing Sites could be developed first. Future dates represent approximations based on the general Project timeline and are subject to change pending unpredictable circumstances that may arise.

Air pollutant emissions for each Housing Site were prepared utilizing the construction schedules in **Table 4.1-8**. **Table 4.1-9: Project Construction Diesel Equipment Inventory** displays the construction equipment assumed for the various phases of construction. The Project would be required to adhere to SCAQMD Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings) during construction activities.

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<sup>63</sup> EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles). OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment). CalEEMod version 2020.0.4 utilizes CARB's 2017 version of EMFAC.

**Table 4.1-8**  
**Construction Schedule per Housing Site**

Housing Site	Months	Start Date	End Date
Orange Bluff	18	1/1/2022	7/10/2023
Walnut Bluff	12	1/1/2022	12/30/2022
Town Center Northwest	24	1/1/2022	12/29/2023
Heritage Square	18	1/1/2022	7/6/2023

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

**Table 4.1-9**  
**Project Construction Diesel Equipment Inventory**

Phase	Off-Road Equipment Type	Horsepower [HP] (Load Factor)
Demolition	Concrete/Industrial Saws	81 (0.73)
	Excavators	158 (0.38)
	Rubber Tired Dozers	247 (0.40)
Site Prep	Graders	187 (0.41)
	Rubber Tired Dozers	247 (0.40)
	Tractors/Loaders/Backhoes	97 (0.37)
Grading	Excavators	158 (0.38)
	Graders	187 (0.41)
	Rubber Tired Dozers	247 (0.40)
	Tractors/Loaders/Backhoes	97 (0.37)
Building Construction	Cranes	231 (0.29)
	Forklifts	89 (0.20)
	Generator Sets	84 (0.74)
	Tractors/Loaders/Backhoes	97 (0.37)
	Welders	46 (0.45)
Paving	Pavers	130 (0.42)
	Paving Equipment	132 (0.36)
	Rollers	80 (0.38)
	Cement and Mortar Mixers	9 (0.56)
	Tractors/Loaders/Backhoes	97 (0.37)
Architectural Coating	Air Compressors	78 (0.48)

## ***Operation***

Analysis of the Housing Site's impact on regional air quality after development considers three types of sources: 1) area; 2) energy; and 3) mobile. Area source emissions are generated by, among other things, landscape equipment and the use of consumer products. Energy source emissions are generated as a result of activities in buildings which utilize electricity or natural gas utility infrastructure. Mobile source emissions are generated by the increase in motor vehicle trips to and from the Housing Sites associated with operation of the proposed land uses.

Localized impacts from Project operations included calculation of on-site emissions (e.g., combustion from natural gas usage) using SCAQMD's recommended CalEEMod and evaluation of these emissions consistent with the SCAQMD's LST Methodology. Potential localized CO concentrations from induced traffic at nearby intersections are addressed consistent with the methodologies and assumptions used in the consistency analysis provided in the SCAQMD 2003 AQMP. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact. As shown in the Project's Traffic Study in **Appendix H**, development of the Housing Sites would add 5,299 daily trips to the area with a maximum of 334 AM peak hour trips and 405 PM peak hour trips. Accordingly, the developments would not produce the volume of traffic required to generate a CO hotspot.

## ***Environmental Impacts***

### **AQ-1: Conflict with or obstruct implementation of the applicable air quality plan?**

The South Coast Air Quality Management District (SCAQMD) adopted an updated air quality management plan (AQMP) in March 2017.<sup>64</sup> The Final 2016 AQMP was prepared to comply with the federal and State Clean Air Acts and amendments; accommodate growth; reduce pollutants in the Air Basin; meet federal and State air quality standards; and minimize the fiscal impact of pollution control measures on the local economy. It builds on approaches in the previous AQMP to achieve attainment of the federal ozone air quality standard. These planning efforts have substantially decreased exposure to unhealthy levels of pollutants, even while substantial population growth has occurred within the Air Basin. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumption used in the development of the AQMP would

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64 South Coast Air Quality Management District, Final 2016 Air Quality Management Plan, March 2017.

not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

SCAG has the responsibility for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. With respect to the determination of consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2016–2040 RTP/SCS regarding population, housing, and growth trends. With regard to air quality planning, SCAG has prepared and adopted the 2020–2045 RTP/SCS,<sup>65</sup> which includes a Sustainable Communities Strategy that addresses regional development and growth forecasts. Determining whether or not a project exceeds SCAG's growth forecasts involves the evaluation of the following: (1) consistency with applicable population, housing, and employment growth projections; (2) project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies.

It is important to note the adoption of the 2021-2029 Housing Element would not approve any development projects or propose any specific development. However, the following analysis assess for the impacts of development taking place over the identified Housing Sites to help determine the feasibility for development at each identified sites in accordance with Government Code Section 65583.2(c).

A project is consistent with the AQMP, in part, if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. As discussed in **Section 4.7: Land Use and Planning**, the Project would conform to objectives outlined in the 2020–2045 RTP/SCS and the Signal Hill General Plan. Specifically, the Project would be consistent with the 2020–2045 RTP/SCS Regional Housing Strategy Framework which places an emphasis on affordable infill housing development within transit-oriented neighborhoods. The adoption of the 2021-2029 Housing Element update would not approve any developments and the identified Housing Sites are all located within High Quality Transit Areas (HQTAs) according to SCAG which is considered a generally walkable transit village or corridor and is within one half-mile of a well-serviced transit stop or a transit corridor within 15-minute or less service frequency during peak hours.

As discussed in **Section 4.9: Population and Housing**, the forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update would be an estimated 1,355 persons at the completion of 517 dwelling units.<sup>66</sup> Including the forecast population growth resulting from

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<sup>65</sup> Southern California Association of Governments (SCAG), Connect SoCal: 2020–2045 Regional Transportation Plan/Sustainable Communities Strategies Draft, "Chapter 1," <https://www.connectsocal.org/Pages/Connect-SoCal-Draft-Plan.aspx>, Accessed July 2021.

<sup>66</sup> Calculated from average household population of 2.62 multiplied by 517 units.

future housing development facilitated by the 2021-2029 Housing Element update, the City's population would total approximately 12,955 persons.<sup>67</sup> The City's forecast population of approximately 12,955 persons would be a less than 5 percent increase over the SCAG's forecast population of 12,500 persons by 2045. Additionally, the housing unit development facilitated by the 2021-2029 Housing Element update would be put in place, in part, to accommodate for an existing shortage of housing for the existing population in the region and within the City limits. As such, the development of housing units at identified Housing Sites are not anticipated to induce new population growth. As such, the increase in population at full build out of housing units in compliance with the 6<sup>th</sup> Cycle RHNA allocation would be comparable to the 2045 SCAG population forecast.

Additionally, the Air Basin is currently designated as nonattainment at the federal level for O<sub>3</sub>, Pb, and PM<sub>2.5</sub>; and at the State level for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. SCAQMD developed regional emissions thresholds to determine whether a project would contribute to air pollutant violations. If a project exceeds the regional air pollutant thresholds, then it would significantly contribute to air quality violations in the Air Basin. As discussed further in **Table 4.1-10** below, temporary emissions associated with construction of the Housing Sites would not exceed any of the SCAQMD thresholds for regional emissions. Additionally, as discussed further in **Table 4.1-11** below, long-term emissions associated with operation would not exceed SCAQMD's thresholds. As such, the Project is consistent with the growth assumptions in the regional air plan and would not contribute to air quality violations in the Air Basin. Impacts would be less than significant.

**Threshold AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?**

A significant impact could occur if the Project would add a considerable contribution to Federal or State nonattainment pollutants. In regard to determining the significance of the Project contribution, the SCAQMD neither recommends quantified analyses of construction and/or operational emissions from multiple related projects nor provides methodologies or thresholds of significance to be used to assess the cumulative emissions generated by multiple cumulative projects. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts be assessed utilizing the same significance criteria as those for project-specific impacts. Furthermore, SCAQMD states that "projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."<sup>68</sup> Therefore, if a project generates less than significant construction or operational emissions, then the

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67 Adding population of 11,600 in 2016 to 1,355 additional from 2021-2029 Housing Element update.

68 South Coast Air Quality Management District (SCAQMD), White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (2003), Appendix A.

project would not contribute a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in nonattainment.

## Construction

It is mandatory for all construction projects in the Air Basin to comply with SCAQMD Rule 403 for fugitive dust. Rule 403 control requirements include measures to prevent the generation of visible dust plumes. Measures include, but are not limited to, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages before vehicles exit a project site, and maintaining effective cover over exposed areas. In addition, SCAQMD Rule 1113 would limit the VOC content of architectural coatings. Thus, compliance with these SCAQMD rules is incorporated into the analysis provided below.

Ambient pollutant concentrations standards are forecasted for all criteria pollutants during Project construction. These impacts would be temporary in nature, lasting only for the construction period, and would not have a long-term impact on the region's ability to meet State and federal air quality standards. The maximum daily regional construction emissions are provided in **Table 4.1-10: Unmitigated Maximum Regional Construction Emissions**. As shown in **Table 4.1-10**, the daily maximum regional construction emissions would not exceed any of the SCAQMD daily significance thresholds prior to mitigation. Therefore, regional construction emissions resulting from construction of the Housing Sites would result in a less than significant short-term regional air quality impact during construction.

**Table 4.1-10**  
**Unmitigated Maximum Regional Construction Emissions**

Housing Site	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
	pounds/day					
Orange Bluff	44	29	47	<1	8	4
Walnut Bluff	27	21	29	<1	3	2
Town Center Northwest	43	29	47	<1	8	4
Heritage Square	17	28	41	<1	8	4
Maximum	44	29	47	<1	8	4
SCAQMD threshold	75	100	550	150	150	55
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns; VOC = volatile organic compounds; SO<sub>x</sub> = sulfur oxides.

## Operation

On-road mobile vehicles, electricity, natural gas, water, landscape equipment, solid waste, and wastewater would generate the majority of emissions on-site during Project operation. The primary

source of long-term criteria air pollutant emissions would be from Project-generated vehicle trips. The maximum daily regional operational emissions are provided in **Table 4.1-11: Unmitigated Maximum Regional Operational Emissions**. As shown in **Table 4.1-11**, operational emission levels would not exceed the SCAQMD daily regional thresholds and, as such, would result in less than significant operation impacts.

**Table 4.1-11**  
**Unmitigated Maximum Regional Operational Emissions**

Housing Site	VOCs	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
	pounds/day					
Orange Bluff	14	13	93	<1	16	5
Walnut Bluff	4	4	29	<1	5	1
Town Center Northwest	13	11	84	<1	15	4
Heritage Square	4	3	23	<1	4	1
Total	35	31	229	<1	40	11
SCAQMD threshold	55	55	550	150	150	55
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

Note: ( ) = To be deducted from proposed operational emissions.

CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns; VOCs = volatile organic compounds; SO<sub>x</sub> = sulfur oxides.

### Threshold AQ-3: Expose sensitive receptors to substantial pollutant concentrations?

The results of the construction LST analysis for each Housing Site is provided below. It is important to note, in the event identified Housing Sites are developed, construction would be required to comply with the SCAQMD's Rule 403 (Fugitive Dust), which requires watering of a project site during dust-generating construction activities, stabilizing disturbed areas with water or chemical stabilizers, and preventing track-out dust from construction vehicles, thus further reducing construction-related emissions. Construction impact analysis of each Housing Site is provided below.

#### Orange Bluff

The maximum localized construction and operational emissions associated with the Orange Bluff site are provided in **Table 4.1-12: Unmitigated Localized Construction and Operational Emissions – Orange Bluff**. As shown in **Table 4.1-12**, the unmitigated daily localized construction and operational emissions would not exceed the SCAQMD daily localized significance thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, or PM<sub>2.5</sub>. Therefore, the localized impacts associated with the Orange Bluff site would be less than significant.



**Table 4.1-12**  
**Unmitigated Localized Construction and Operational Emissions – Orange Bluff**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Source	pounds/day			
<b>Construction</b>				
Total maximum on-site emissions	19	23	7	4
LST threshold <sup>a</sup>	85	947	8	5
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Operation</b>				
Buildout Area/energy emissions	5	27	<1	<1
LST threshold	85	947	2	1
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

CO = carbon monoxide; LST = localized significance threshold; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns.

<sup>a</sup> LST for a 5-acre site

## Walnut Bluff

The maximum localized construction and operational emissions associated with the Walnut Bluff site are provided in **Table 4.1-13: Unmitigated Localized Construction and Operational Emissions – Walnut Bluff**.

**Table 4.1-13**  
**Unmitigated Localized Construction and Operational Emissions – Walnut Bluff**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Source	pounds/day			
<b>Construction</b>				
Total maximum on-site emissions	12	13	3	2
LST threshold <sup>a</sup>	82	842	7	5
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Operation</b>				
Buildout Area/energy emissions	2	8	<1	<1
LST threshold	82	842	2	1
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

CO = carbon monoxide; LST = localized significance threshold; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns.

<sup>a</sup> LST for a 5-acre site

As shown in **Table 4.1-13**, the unmitigated daily localized construction and operational emissions would not exceed the SCAQMD daily localized significance thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, or PM<sub>2.5</sub>. Therefore, the localized impacts associated with the Walnut Bluff site would be less than significant.

### Town Center Northwest

The maximum localized construction and operational emissions associated with the Town Center Northwest site are provided in **Table 4.1-14: Unmitigated Localized Construction and Operational Emissions – Town Center Northwest**. As shown in **Table 4.1-14**, the unmitigated daily localized construction and operational emissions would not exceed the SCAQMD daily localized significance thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, or PM<sub>2.5</sub>. Therefore, the localized impacts associated with the Town Center Northwest site would be less than significant.

**Table 4.1-14**  
**Unmitigated Localized Construction and Operational Emissions – Town Center Northwest**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Source	pounds/day			
<b>Construction</b>				
Total maximum on-site emissions	19	23	7	4
LST threshold <sup>a</sup>	85	947	8	5
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Operation</b>				
Buildout Area/energy emissions	5	24	<1	<1
LST threshold	85	947	2	1
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

CO = carbon monoxide; LST = localized significance threshold; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns.

<sup>a</sup> LST for a 5-acre site

### Heritage Square

The maximum localized construction and operational emissions associated with the Heritage Square site are provided in **Table 4.1-15: Unmitigated Localized Construction and Operational Emissions – Heritage Square**. As shown in **Table 4.1-15**, the unmitigated daily localized construction and operational emissions would not exceed the SCAQMD daily localized significance thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, or PM<sub>2.5</sub>. Therefore, the localized impacts associated with the Heritage Square site would be less than significant.

**Table 4.1-15**  
**Unmitigated Localized Construction and Operational Emissions – Heritage Square**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Source	pounds/day			
<b>Construction</b>				
Total maximum on-site emissions	19	25	7	4
LST threshold <sup>a</sup>	85	947	8	5
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Operation</b>				
Buildout Area/energy emissions	1	6	<1	<1
LST threshold	85	947	2	1
<b>Threshold exceeded?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: Refer to **Appendix B-1** for CalEEMod output sheets.

CO = carbon monoxide; LST = localized significance threshold; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter less than 10 microns; PM<sub>2.5</sub> = particulate matter less than 2.5 microns.

<sup>a</sup> LST for a 5-acre site

**Threshold AQ-4:            Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

As shown in **Tables 4.1-12** through **4.1-15** above, localized construction and operational emissions of the four Housing Sites would result in emissions below the localized significance thresholds. Moreover, the proposed developments would be required to comply with SCAQMD Rule 1113 which would limit the amount of VOCs in architectural coatings and solvents. According to the SCAQMD, while almost any source may emit objectionable odors, some land uses are more likely to produce odors because of their operation. Land uses more likely to produce odors include agriculture, chemical plants, composting operations, dairies, fiberglass molding manufacturing, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants. The adoption of the 2021-2029 Housing Element does not approve developments of any kind and in the event identified Housing Sites are development, the Housing Sites would not contain any active manufacturing activities and would not convert current agricultural land to residential land uses. Objectionable odors would not be emitted by the proposed residential and commercial uses.

Any unforeseen odors generated by the development of the Housing Sites will be controlled in accordance with SCAQMD Rule 402 which prohibits the discharge of air contaminants that harm, endanger, or annoy individuals or the public; endanger the comfort, health or safety of individuals or the public; or cause injury or damage to business or property. Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement

plan. Therefore, development of the Housing Sites would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impacts associated with objectionable odors would be less than significant.

## **6. MITIGATION MEASURES**

Project impacts to air quality is less than significant. No mitigation measures are required.

## **7. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Project impacts to air quality is less than significant. No mitigation measures are required.

### 1. INTRODUCTION

This section evaluates potential impacts concerning cultural resources that could result from the Project, including development of the Housing Sites. This section describes the existing environmental and regulatory settings concerning cultural resources. The primary source of information used for this analysis comes from the City of Signal Hill (City) Environmental Resources Element and a Cultural Resources Inventory dated June 18, 2021, performed by PaleoWest.

### 2. ENVIRONMENTAL SETTING

#### Prehistoric Setting

##### *Regional and Local*

The landmass and climate of Southern California presented a unique region for Native American Tribes to settle and coexist. Tribes existing towards the north included the Chumash, Alliklik, Kitanemuk, Serrano, Gabrielino Luiseno Cahuilla, and the Kumeyaay who had fruitful relationships with their Chumash neighbors who lived on the Channel Islands.<sup>1</sup> These tribes had access to rich marine resources and enjoyed the shoreline consisting of ocean, bays, and wetland environments. The interior tribes of the Serrano, Luiseno, Cahuilla, and Kumeyaay lived within a warmer more desert-like climate utilizing the abundance of rabbit, deer, acorn, seeds, and native grasses to thrive. According to the History of Signal Hill, the Puva Indians were the first settlers of the area that is now known as Signal Hill.<sup>2</sup> The City was named after the signaling point that the tribe used to contact Native American tribes on the island of Santa Catalina called “Loma Sental” or “Signal Hill.” It was recorded that the Puva tribe had knowledge of oil seeps existing within the area which were later utilized by settlers for oil drilling and manufacturing facilities.<sup>3</sup> The early Native American tribes including the Puva tribe, had been seen using the tar or “pitch” from these seeps in the early 1500s to waterproof their canoes for more efficient travel, most likely to trade with the neighboring Chumash or fish near the shoreline.

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1 State of California, Native American Heritage Commission, California Indian History, <http://nahc.ca.gov/resources/california-indian-history/>. Accessed June 2021.

2 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore.>, accessed May 2021.

3 Signal Hill Historical Society, The Story of Oil in California, <https://www.shhs90755.org/early-oil-history/story-of-oil-in-ca.html>. Accessed June 2021.

## Historic Setting

In 1784, Manuel Nieto received a land grant from King Carlos III of Spain, and became the first recorded land owner in the City.<sup>4</sup> He divided the land into six ranchos which included Rancho Los Alamitos and Rancho Los Cerritos in Signal Hill. By the early 1900's, Signal Hill was occupied by wealthy inhabitants who added mansions to the hilltops of the city since the panoramic views of the area were captivating. In 1917, oil was discovered in Signal Hill on a hilltop and the Union Oil Company drilled the first well in the area. The well failed to produce any oil and was abandoned shortly thereafter until the Royal Dutch Shell Oil Company continued to explore the city for more prospective areas in 1921. The company discovered the first official overwhelming source of oil that same year, naming it Alamitos Well Number 1, which produced a continuous release of oil and furthered Signal Hill's reputation as a major source of oil. After only about ten months from the discovery in Alamitos, the city was overwhelmed with wells producing 14,000 barrels of oil per day and by 1923 increased to 259,000 barrels from nearly 300 wells.<sup>5</sup> The city became known as one of the richest oil fields in the world, producing over one billion barrels over the next few decades by 1984. By 1994, over 1.6 million barrels were produced in just that year. Signal Hill continues to produce moderate amounts of oil at around 5 million barrels per year.<sup>6</sup>

The City is completely surrounded by the city of Long Beach and in 1924, in order to avoid a per-barrel tax on oil by the city of Long Beach, Signal Hill voted to become incorporated.<sup>7</sup> Signal Hill's production of oil continued to be the main source of growth for the city, until the 1970s when gas prices were in decline. The City decided to refocus their efforts on economic development and diversity and away from oil production.

## Cultural Resources

A cultural resources inventory search was conducted on June 10<sup>th</sup>, 2021, to identify any archaeological resources present within the vicinity of the Project Site which encompasses the entire City. The cultural resources inventory was conducted at the South Central Coast Information Center (SCCIC) housed at California State University, Fullerton. The records search included the California Historic Resource

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- 4 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore>
  - 5 Signal Hill Historical Society, The Story of Oil in California, <https://www.shhs90755.org/early-oil-history/story-of-oil-in-ca.html>. Accessed June 2021.
  - 6 City of Signal Hill, The Oil Field, <https://www.cityofsignalhill.org/422/The-Oil-Field#:~:text=25%20square%20mile%20city%20of%20Signal%20Hill%20lies,retains%20around%205%20million%20barrels%20of%20recoverable%20oil,> accessed May 2021.
  - 7 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore,> accessed May 2021.

Information System (CHRIS), a historical map and aerial photograph review, and a Sacred Lands File (SLF) search by the Native American Heritage Commission (NAHC). The search also included a review of the Office of Historic Preservation Archaeological Determination of Eligibility and the Office of Historic Preservation Directory of Historic Properties Data File.

The CHRIS records search included the four Housing Sites as well as a half-mile (0.5) buffer area. The records search indicated that 18 previous studies have been conducted within a half-mile of the Project area. One study (LA-03651) consisted of a cultural resource records search of a large portion of the City, including the entire Project area. The study found identified three historic era buildings and two prehistoric archaeological sites resources within the area, though none of these were located within or adjacent to the Housing Sites.

Historical topographic maps and aerial photographs indicated that all four Housing Sites contained petroleum wells and associated structures dating back to the early 1930's. However, most of the historic-era wells were destroyed or demolished by the 1990's. Remnants of these wells are still visible in recent aerial images of the existing Housing Sites. The report mentioned that the archaeological remains of historic-era petroleum wells and associated structures within the Project area may require future documentation and/or evaluation.

### **3. REGULATORY FRAMEWORK**

#### **Federal Setting**

##### ***National Historic Preservation Act***

The National Historic Preservation Act of 1966 established the National Register of Historic Resources to recognize resources associated with the country's history and heritage. Structures and features must be at least 50 years old to be considered for listing on the National Register, barring exceptional circumstances. Criteria for listing on the National Register, which are set forth in the Code of Federal Regulations,<sup>1</sup> are significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are any of the following:

1. Associated with events that have made a significant contribution to the broad patterns of our history;
2. Associated with the lives of persons significant in our past;

3. Embodying the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; represent a significant and distinguishable entity whose components may lack individual distinction; and
4. Have yielded, or may be likely to yield, information important in prehistory or history (Criterion D is usually reserved for archaeological and paleontological resources).

### ***Secretary of the Interior's Standards for the Treatment of Historic Properties***

The Secretary of the Interior (SOI) is responsible for establishing standards for the preservation and protection of buildings and other cultural resources eligible for listing in the National Register. The 1990 document Secretary of the Interior's Standard for the Treatment of Historic Properties outlines specific standards and guidelines for the preservation, rehabilitation, restoration, and reconstruction of historically designated structures. Preservation standards and guidelines apply to those buildings that require ongoing maintenance to sustain its existence as a historical structure. Rehabilitation standards and guidelines involve the reuse of an historic structure or property while maintaining portions that maintain historic value. Restoration standards and guidelines are applicable to projects that remove portions of a building from another historic period to reconstruct missing features from the restoration period. Reconstruction standards and guidelines apply to new developments that replicate an historic period or setting. Each set of standards provides specific recommendations for the proper treatment of specific building materials, as well as parts of building development.

### ***Archaeological Resources Protection Act***

The intent of the Archaeological Resources Protection Act (ARPA) of 1979<sup>8</sup> is to ensure the preservation and protection of archaeological resources on public and Indian lands. ARPA places a primary emphasis on a federal permitting process to control the disturbance and investigation of archaeological sites on these lands. In addition, ARPA's protective provisions are enforced by civil penalties for violation of the ARPA.

ARPA mandates consultation procedures before initiation of archaeological research on Indian lands or research involving Indian archaeological resources. Section 4(c) requires that Indian tribes be notified of possible harm to or destruction of sites having religious or cultural significance to that group. The federal land manager must notify affected tribes before issuing the permit for archaeological work. Section (g)(2) specifies that permits to excavate or remove archaeological resources from Indian lands require consent of the Indian or Indian tribe owning or having jurisdiction over such lands. The permit must include such

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8 United States Code, tit. 16, sec. 470aa–470mm, Archaeological Resources Protection Act of 1979, Public Law 96-95, as amended.



terms and conditions as may be requested by the affected Native Americans. With respect to the custody of archaeological resources, ARPA stipulates that any exchange or ultimate disposition of archaeological resources excavated or removed from Indian lands must be subject to the consent of the Indian or Indian tribe owning or having jurisdiction over such lands.

## **State Setting**

### ***California State Office of Historic Preservation***

The mission of the California State Office of Historic Preservation (OHP) and the State Historical Resources Commission (SHRC), in partnership with the people of California and governmental agencies, is to preserve and enhance California's irreplaceable historic heritage as a matter of public interest so that its vital legacy of cultural, educational, recreational, aesthetic, economic, social, and environmental benefits will be maintained and enriched for present and future generations.

The OHP is responsible for administering federally and State-mandated historic preservation programs to further the identification, evaluation, registration, and protection of California's irreplaceable archaeological and historical resources under the direction of the OHP and the SHRC. OHP reviews and comments on several thousand federally sponsored projects, State programs, and State projects annually pursuant to Section 106 of the National Historic Preservation Act.

### ***California Register of Historical Resources***

The SHRC has designed the California Register of Historical Resources program (California Register) for use by State and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The California Register is the authoritative guide to the State's significant historical and archeological resources. The California Register program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance, identifies historical resources for State and local planning purposes, determines eligibility for State historic preservation grant funding, and affords certain protections under the California Environmental Quality Act (CEQA).

To be eligible for listing in the California Register, a resource must meet at least one of the following criteria:

- A. Be associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
- B. Be associated with the lives of persons important to local, California, or national history;

- C. Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values; or
- D. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance. Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and must convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data.

### ***California Historical Landmarks***

California Historical Landmarks are buildings, structures, sites, or places that have been determined to have Statewide historical significance by meeting at least one of the criteria listed in the following paragraph. The resource also must be approved for designation by the County Board of Supervisors or the City/Town Council in whose jurisdiction it is located, must be recommended by the SHRC, and must be officially designated by the Director of California State Parks.

### ***California Points of Historical Interest***

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the SHRC are also listed in the California Register. No historical resource may be designated as both a Landmark and a Point. If a Point is subsequently granted status as a Landmark, the Point designation will be retired.

### ***California Environmental Quality Act***

Under CEQA (Public Resources Code [PRC] Section 21084.1), 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. State CEQA Guidelines Section 15064.5 defines a historical resource as: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the

California Register of Historic Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

As described by PRC Section 21084.1 and State CEQA Guidelines Section 15064.5, should a project cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (State CEQA Guidelines Sections 15064.5(b)(1) and 15064.5(b)(4)).

Archaeological resources are defined in CEQA Section 21083.2, which states that a "unique" archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Unique archaeological resources as defined in Section 21083.2 may require reasonable efforts to preserve resources in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. Additionally, the State CEQA Guidelines state that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (State CEQA Guidelines Section 15064.5(c)(4)).

### ***California Public Resources Code Section 21080.3.1***

California PRC Section 21080.3.1, as amended by Assembly Bill (AB) 52, requires lead agencies to consider the effects of projects on tribal cultural resources and to conduct consultation with federally and nonfederally recognized Native American Tribes early in the environmental planning process and applies

specifically to projects for which a Notice of Preparation (NOP) or a notice of Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The goal is to include California Tribes in determining whether a project may result in a significant impact to tribal cultural resources that may be undocumented or known only to the Tribe and its members and specifies that a project 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. Tribal cultural resources are defined as known “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources (PRC Section 21074 (a)(1)). **Section 4.12: Tribal Cultural Resources** of this Draft EIR contains additional discussion of the Project’s potential effect on tribal cultural resources.

### ***Health and Safety Code***

Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with the California Health and Safety Code and the Public Resources Code as follows:<sup>9</sup>

*In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will 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 shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.*

## **Regional and Local Setting**

### ***Los Angeles County Historical Landmarks and Records Commission***

Los Angeles County Historical Landmarks and Records Commission reviews and recommends cultural heritage resources in the unincorporated area for inclusion in the State Historic Resources Inventory.<sup>4</sup> The Commission shall consider and recommend to the Board local historical landmarks defined to be worthy of registration by the State of California Department of Parks and Recreation, either as "California

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<sup>9</sup> California Health and Safety Code, sec. 7050.5 and 5097.98.

Historical Landmarks" or as "Points of Historical Interest," and may consider and comment for the Board on applications relating to the National Register of Historic Places.

Criteria for designation, including significance and access and provision for maintenance, shall be as specified in state law, including the California Public Resources Code, or in regulations and interpretations of the State Historical Resources Commission.

### ***Signal Hill General Plan***

The following Element, and the relevant goals and policies applies to cultural resources within the City.

#### **Environmental Resources Element**

**Goal 2:** Maintain and enhance the City's unique cultural, aesthetic and historic areas.

**Policy 2.2:** Protect and enhance architectural resources in the City consistent with their significant and importance. Develop ways of encouraging these resources to remain intact as the City grows and develops.

### ***Signal Hill Municipal Code***

The City's Municipal Code does not include provisions discussing cultural resources or historic preservation within the City except for the Crescent Heights Historic District Specific Plan. The City's Crescent Heights Historic District Specific Plan includes guidelines, concepts, regulations, and conditions for relocating historically significant structures to the district as well as regulating dwellings within the district.<sup>10</sup>

## **4. ENVIRONMENTAL IMPACTS**

### ***Thresholds of Significance***

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to cultural resources if it would:

**Threshold CUL-1:** Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

**Threshold CUL-2:** Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

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<sup>10</sup> Code of Ordinances, Title 20, Ch. 20.31.

## ***Methodology***

The analysis in this section addresses potential project impacts relating to cultural resources which may be affected by the proposed Project and future development of the Housing Sites. Impacts to cultural resources would be determined by available information through record searches and based on existing and available studies. Data and information collected through record searches would be analyzed to identify local culturally significant resources. Effects of the proposed Project would then be applied to significant cultural resources, if any, to determine the proposed Project's impacts on any culturally significant resources. The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

## ***Environmental Impacts***

**Threshold CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?**

Based on the records search, no known historical or prehistoric resources were identified on or near the Housing Site or within the ½ mile buffer surrounding the Housing Sites.<sup>11</sup> The Cultural Resources Inventory records search found eighteen previous studies have been conducted within a half-mile of the Project area and a single study (LA-03651) had included the entire Project area within its radius. The records search identified five resources within a half-mile buffer of the Housing Sites including: two pre-historic sites (Shell Midden), and three historic buildings (Lomita Gasoline Company/Petrolane Office Building, a Single Family Residence, and Lomita Gasoline Company/Petrolane Compressor House). None of the above-mentioned resources were identified as listed or eligible for listing within the CRHR or NRHR. Nor were they within or adjacent to the Housing Sites.

A review of historic topographic maps and aerial photographs was conducted and found that all four Housing Sites included petroleum wells and associated infrastructure dating back to the early 1930s. The City's Environmental Resources Element recognizes oil development as a historical resource, stating that "Remaining derricks and towers are living reminders of these past events" and the Alamitos #1 Discovery Well is a designated historical monument.<sup>12</sup> However, the features on the housing sites have mostly been removed or abandoned and what remains do not represent unique historic events. As such, the Project would not have an adverse effect on the significance of a historical resource. Impacts would be less than significant.

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<sup>11</sup> See PaleoWest, Cultural Resource Desktop Review, June 18, 2021 included in Appendix I

<sup>12</sup> General Plan, Environmental Resources Element, Historic Resources, pg. 19.

**Threshold CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?**

CEQA Guidelines Section 15064.5(a)(3)(D) defines archaeological resources as any resource that “has yielded, or may be likely to yield, information important to prehistory or history.” Archaeological resources are features, such as tools, utensils, carvings, fabric, building foundations, etc., that document evidence of past human endeavors and that may be historically or culturally important to a significant earlier community.

The Housing Site locations have not been identified by the City of Signal Hill General Plan Environmental Resources Element as containing any archaeological resources.<sup>13</sup> As previously mentioned, the Cultural Resources Records Search included the area of a half-mile radius around the Housing Sites, for the purpose of identifying any known cultural resources on and within the vicinity of the Housing Sites.

The records search identified two prehistoric shell midden archaeological sites within the half-mile buffer around the Project area. Additionally, the remnants of previously oil drilling facilities located on each of the four Housing Sites were found dating back to the early 1930s. The prehistoric sites identified within the cultural resource review would not be affected by development of the Housing Sites since the development of each site would not extend beyond the boundaries of each identified Housing Site land areas. The Housing Sites are also highly and frequently disturbed due to oil drilling activities. Because of the existing and historical disturbances noted, it is highly unlikely that any intact buried archaeological remains would be present within or near the boundaries of the Housing Sites.

However, considering the age of the oil drilling equipment and the proximity of the prehistoric sites that were identified by the report, the potential exists for unearthing archeological resources. As such, potential impacts could be significant.

## **5. MITIGATION MEASURES**

Mitigation Measure **MM TCR-1**, as described in **Section 4.12** would require the use of a monitor during ground disturbing construction activity and includes provisions for the discovery of artifacts that are not determined by the monitor to be tribal resources.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

The implementation of mitigation measure **MM TCR-1** would ensure that if archeological resources were encountered during development of the sites, impacts to those resources would be reduced to a less than significant level.

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<sup>13</sup> General Plan, Environmental Resources Element, Historic Resources, pg. 19.

## **1. INTRODUCTION**

This section of the Draft EIR provides a discussion of energy resources and applicable laws and regulations associated with energy, as well as an analysis of the potential effects resulting from adoption of the 2021-2029 Housing Element (Project), including the potential development of the Candidate Housing Sites (Housing Sites). Calculation worksheets used in the analysis are contained in **Appendix C: Energy Calculations** of this Draft EIR.

## **2. ENVIRONMENTAL SETTING**

### **Existing Conditions**

#### ***Electricity***

Electricity is typically a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for use by customers. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts (MW), which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

According to the California Energy Commission's (CEC), the State of California consumed 277,750 GWh of electricity in 2019, with electricity demand projected to rise to 317,217 GWh in 2030, the furthest year of currently available projections.<sup>1</sup>

The Project Site is within the Southern California Edison (SCE) service area. The SCE service area covers 50,000 square miles and includes 15 counties, which serve approximately 15 million people in central,

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1 California Energy Commission (CEC), Final 2020 Integrated Energy Policy Report Update Volume III California Energy Demand Forecast Update, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update>. Accessed July 2021.



coastal, and Southern California.<sup>2</sup> The SCE planning area used approximately 105,162 GWh of electricity in 2019.<sup>3</sup> SCE estimates that electricity consumption within its planning area will vary between approximately 120,000 GWh annually by 2022, to approximately 128,000 GWh annually by 2030.<sup>4</sup>

Furthermore, SCE supplies power to homes and businesses via different plan options, including “Green Rates.”<sup>5</sup> The Green Rate gives consumers the opportunity to purchase renewable energy. By participating in the Green Rate, consumers support local solar power, reducing greenhouse gas (GHG) emissions associated with electricity. To support this effort, SCE purchases additional renewable energy to meet the needs of Green Rate participants from solar renewable developers within the SCE service territory. This is a voluntary program available to both residential and nonresidential energy users who receive power generation, metering, and related services from SCE. In 2017, SCE released *The Clean Power and Electrification Pathway* (Pathway) which presents SCE’s integrated blueprint to meet the State’s goal of 40 percent reduction in GHG emissions from 1990 levels by 2030.<sup>6</sup> Specifically, SCE’s Pathway calls for:

- An electric grid supplied by 80 percent carbon-free energy;
- More than 7 million electric vehicles on California roads; and
- Using electricity to power nearly one-third of space and water heaters, in increasingly energy-efficient buildings.

The nearest transmission line to the Orange Bluff site includes a 66 kilovolt (kV) line along E. 28<sup>th</sup> Street.<sup>7</sup> The nearest transmission line to the Walnut Bluff, Town Center Northwest, and Heritage Square sites includes a 66 kilovolt kV line along Walnut Avenue.<sup>8</sup>

## Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an

2 Southern California Edison (SCE), Southern California Edison’s Service Area, <https://www.sce.com/about-us/who-we-are/leadership/our-service-territory>. Accessed July 2021.

3 CEC, California Energy Consumption Database, Electricity Consumption by Planning Area, <http://ecdms.energy.ca.gov/electricbyplan.aspx>. Accessed July 2021.

4 CEC, Demand Analysis Office, California Energy Demand 2018-2030 Revised Forecast, <https://efiling.energy.ca.gov/getdocument.aspx?tn=223244>. Accessed July 2021.

5 SCE, Green Rates, <https://www.sce.com/residential/rates/standard-residential-rate-plan/green-rates>. Accessed July 2021.

6 SCE, The Clean Power and Electrification Pathway, <https://www.edison.com/home/our-perspective/clean-power-and-electrification-pathway.html>. Accessed July 2021.

7 California Energy Commission, Electric Infrastructure Map, <https://cecgis-caenergy.opendata.arcgis.com/app/ad8323410d9b47c1b1a9f751d62fe495>. Accessed July 2021.

8 California Energy Commission, Electric Infrastructure Map, <https://cecgis-caenergy.opendata.arcgis.com/app/ad8323410d9b47c1b1a9f751d62fe495>. Accessed July 2021.

issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as transportation fuel. Natural gas is primarily measured in terms of cubic feet (cf), as well as in terms of British thermal units (Btu) and Therms.<sup>9</sup>

According to the CEC's California Energy Consumption Database, the State of California consumed 13,158 million Therms of natural gas in 2019,<sup>10</sup> with demand projected to rise to 12,800 million Therms in 2030,<sup>11</sup> the furthest year of currently available projections.

Natural gas for the proposed Project area is provided by the City of Long Beach Energy Resources Department (LBER). LBER provides natural gas to approximately 500,000 residents and businesses in Long Beach and Signal Hill and delivers gas through more than 1,800 miles of pipelines.<sup>12</sup> Natural gas for LBER is purchased on the open competitive market. Based on the 2020 California Gas Report, LBER supplied approximately 26.3 millions of cubic feet (MMcf) of natural gas per day in 2020 and is expected to supply 26.3 MMcf of natural gas per day between the years 2022 to 2035.<sup>13</sup>

### **Petroleum Based Fuel**

Crude oil is a mixture of hydrocarbons that exists as a liquid in underground geologic formations and remains a liquid when brought to the surface.<sup>14</sup> Petroleum products are produced from the processing of crude oil and other liquids and include transportation-related fuels such as gasoline and diesel. Petroleum is a worldwide commodity. According to the U.S. Energy Information Administration (EIA), California consumed approximately 661,893,000 barrels (27,799,506,000 gallons, or 42 gallons per barrel) in 2019, the most recent year of publicly available data.<sup>15</sup> The EIA forecasts a national oil supply of 17.7 million

9 One Therm is equivalent to 100,000 British thermal units (BTU) or 100 kBTU. A Therm is approximately the energy equivalent of burning 100 cubic feet (1 cf) of natural gas. The conversion of kBTU to cubic feet uses the factor of 1 cf to 1.037 kBTU.

10 CEC, California Energy Consumption Database, Gas Consumption by County, <https://ecdms.energy.ca.gov/gasbycounty.aspx>. Accessed July 2021.

11 CEC, Final 2019 Integrated Energy Policy Report, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>. Accessed July 2021.

12 City of Long Beach, Energy Resources, <http://www.longbeach.gov/energyresources/>. Accessed July 2021.

13 California Public Utilities Commission, 2020 California Gas Report, [https://www.socalgas.com/sites/default/files/2020-10/2020\\_California\\_Gas\\_Report\\_Joint\\_Utility\\_Biennial\\_Comprehensive\\_Filing.pdf](https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf). Accessed July 2021.

14 U.S. Energy Information Administration (EIA), Frequently Asked Questions, <https://www.eia.gov/tools/faqs/faq.php?id=40&t=6>. Accessed July 2021.

15 U.S. EIA, Independent Statistics & Analysis, Table F16: Total Petroleum Consumption Estimates, 2018, [https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep\\_fuel/html/fuel\\_use\\_pa.html&sid=US](https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US). Accessed July 2021.

barrels per day (mb/d) from 2022 to 2030.<sup>16</sup> This equates to approximately 6,461 million barrels per year (mb/y) or 271,362 million gallons per year (mg/y).<sup>17</sup>

Over the last several decades, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs emissions from the transportation sector, and reduce vehicle travel. Incentive programs, such as the CEC's Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP), are helping the State to reduce its dependency on gasoline. The CEC predicts that the demand for gasoline will continue to decline over the upcoming years, and there will be an increase in the use of alternative fuels.<sup>18</sup>

### 3. REGULATORY SETTING

#### Federal Setting

##### *Corporate Average Fuel Economy (CAFE) Standards*

Established by the U.S. Congress in 1975, the CAFE standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and the United States Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy. When these standards are raised, automakers respond by creating a more fuel-efficient fleet. In 2012, the NHTSA established final passenger car and light truck CAFE standards for model years 2017 through 2021, which the agency projects will require in model year 2021, on average, a combined fleet-wide fuel economy of 40.3 to 41.0 miles per gallons (mpg). In March 2020, the United States Department of Transportation (USDOT) and the USEPA issued the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which amends existing CAFE standards and tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establishes new standards covering model years 2021 through 2026.<sup>19</sup>

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel

16 U.S. EIA, Annual Energy Outlook 2020, Table 11. Petroleum and Other Liquids Supply and Disposition, <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0>. Accessed July 2021.

17 One oil barrel is equivalent to 42 gallons.

18 CEC, Final 2019 Integrated Energy Policy Report, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>. Accessed July 2021.

19 National Highway Traffic Safety Administration (NHTSA), Corporate Average Fuel Economy standards, <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>. Accessed July 2021.

consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type.<sup>20</sup> USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type.<sup>21</sup>

## State Setting

### ***State Senate Bill 1389***

Senate Bill (SB) 1389 (PRC Sections 25300–25323; SB 1389) requires the development of an integrated plan for electricity, natural gas, and transportation fuels. The CEC must adopt and transmit to the Governor and Legislature an Integrated Energy Policy Report every two years. The CEC prepares updates to these assessments and associated policy recommendations in alternate years (PRC Section 25302[d]). Preparation of the Integrated Energy Policy Report involves close collaboration with federal, State, and local agencies and a wide variety of stakeholders in an extensive public process to identify critical energy issues and develop strategies to address those issues. The most recently approved report and update, the 2019 Integrated Energy Policy Report Update, addresses the State’s implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, electricity system resilience and efficiency, barriers faced by disadvantaged communities, demand response, renewable energy, natural gas supplies, preliminary transportation energy demand forecast, and climate adaptation and resiliency.<sup>22</sup> In March 2021, the CEC released a Scoping Order for the 2021 Integrated Energy Policy Report.<sup>23</sup>

### ***Renewables Portfolio Standard***

As amended by SB 350, California’s Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 40 percent of total retail sales by 2024, 45 percent of total retail sales by 2027, and 50 percent of total retail sales by 2030. SB 100, signed on September 10, 2018, is the 100 Percent Clean Energy Act of 2018. SB 100 updates the goals of California’s RPS and SB 350 to the following: achieve 50 percent renewable resources target by December 31, 2026 and achieve a 60 percent target by December 31, 2030. SB 100 also requires that eligible renewable energy resources and zero-carbon resources supply

20 United States Environmental Protection Agency (USEPA), Fact Sheet: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles, August 2011, <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100BOT1.PDF?Dockkey=P100BOT1.PDF>. Accessed July 2021.

21 USEPA, Federal Register/Vol. 81, No. 206/Tuesday, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, October 25, 2016, <https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf>. Accessed July 2021.

22 CEC, Final 2019 Integrated Energy Policy Report, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report>. Accessed July 2021.

23 CEC, Scoping Order for the 2021 Integrated Energy Policy Report, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>. Accessed July 2021.

100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all State agencies by December 31, 2045.

SB 100 requires the CEC, California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) to complete a joint agency report to the Legislature evaluating the 100 percent zero-carbon electricity policy. In consultation with all California balancing authorities and as part of a public process, the three agencies will issue a report to the Legislature by January 1, 2021, and at least every four years afterward. The joint report shall include: (1) a review of the 100 percent zero-carbon policy focused on technologies, forecasts, then-existing transmission, and the maintenance of safety, environmental and public safety protection, affordability, and system and local reliability; (2) an evaluation identifying the potential benefits and impacts on system and local reliability associated with achieving the policy; (3) an evaluation identifying the nature of any anticipated financial costs and benefits to electric, gas, and water utilities, including customer rate impacts and benefits; (4) the barriers to, and benefits of, achieving the policy; and (5) alternative scenarios in which the policy can be achieved and the estimated costs and benefits of each scenario.

### ***California's Energy Efficiency Standards for Residential and Nonresidential Buildings***

Part 6 of Title 24 of the CCR, regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The CEC published the 2019 California Building Standards Code (Cal. Code Regs., Title 24) July 1, 2019, with an effective date of January 1, 2020.<sup>24</sup>

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24), commonly referred to as CALGreen, establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. CALGreen is periodically amended; the most recent 2019 standards became effective on January 1, 2020.

The CEC periodically amends and enforces Appliance Efficiency Regulations contained in Title 20 of the CCR. The regulations establish water and energy efficiency standards for both federally regulated appliances and non-federally regulated appliances. The most current Appliance Efficiency Regulations,

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24 CEC, 2019 Building Energy Efficiency Standards, <https://www.energy.ca.gov/title24/2019standards/>. Accessed July 2021.

dated January 2019 cover 23 categories of appliances (e.g., refrigerators; plumbing fixtures; dishwashers; clothes washer and dryers; televisions, etc.) and apply to appliances offered for sale in California.<sup>25</sup>

### ***Transportation Sector Energy Related Regulations***

**Section 4.5: Greenhouse Gas Emissions** of this Draft EIR discusses various statutes that address climate change, which also address energy generation and consumption. As expressed in these statutes, meeting the State’s climate change goals requires focused action to quickly transform the State’s energy system away from fuels that generate GHGs. The following statutes direct various State agencies to conduct assessments and forecasts that are used to develop recommendations for energy policies and programs that conserve State resources, provide reliable energy, protect the environment, enhance the State’s economy, and protect public health and safety.

The State has provided a climate policy portfolio that addresses emissions across sectors including electricity, buildings, transportation, land use and agriculture, and industry. The transportation sector is the largest source of GHG emissions in the State and various State policies call for speeding the transition to zero-emission vehicles (ZEVs), which among other things reduce energy use, including:

- The CARB’s Scoping Plan, which describes California’s approach for achieving its GHG reduction goals. The plan was developed in 2008 and updated in 2014 and 2017;
- Executive Order B-16-2012 set a goal of reaching 1.5 million ZEVs on California roadways by 2025; and
- Executive Order B-48-18 calls for at least 5 million ZEVs on California roads by 2030 and spurs the installation of 250,000 plug-in electric vehicle chargers, including 10,000 direct fast current chargers, and 200 hydrogen refueling stations by 2025.

Executive Order B-55-18 established a Statewide goal to achieve carbon neutrality by 2045. Although these statutes are broader than the energy sector, reducing GHG emissions from California’s energy system, including transportation, is a fundamental part of the effort to reduce reliance on fossil fuels.

Other State regulations that indirectly reduce fuel consumption include:

- AB 1493 (Pavley, 2002), which required CARB to adopt regulations to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks for model years 2009–2016.<sup>26</sup>
- EO S-1-07, as issued by Governor Schwarzenegger, called for a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB by 2020.<sup>27</sup>

25 CEC, Appliance Efficiency Standards Scheduled to Take Effect in 2019, <http://calenergycommission.blogspot.com/2018/12/appliance-efficiency-standards.html>. Accessed July 2021.

26 California Air Resources Board (CARB), Clean Car Standards—Pavley, Assembly Bill 1943, [www.arb.ca.gov/cc/ccms/ccms.htm](http://www.arb.ca.gov/cc/ccms/ccms.htm). Accessed July 2021.

27 Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the “lifecycle” of a transportation fuel.

### ***Executive Order S-03-05***

Executive Order S-03-05 mandates that California emit 80 percent fewer GHGs in 2050 than it emitted in 1990. Energy efficiency and reduced vehicle miles traveled (VMT) would play important roles in achieving this goal. As previously mentioned, GHG reduction efforts increase energy efficiency which also reduces the consumption of petroleum-based fuels.

### ***California Air Resources Board***

In 2012, CARB approved the Advanced Clean Cars (ACC) program, an emissions-control program for passenger vehicles and light-duty trucks for model years 2017–2025, thereby continuing the regulatory framework established under the Pavley standards beyond model year 2016. The program combines the control of smog, soot, and GHG emissions with requirements for greater numbers of zero-emission vehicles. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.<sup>28</sup> Consistent with the other State-reduction policies geared toward reducing GHG emissions, the efforts to speed up integration of ZEVs and PHEVs would reduce the consumption of petroleum based fuels.

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, CCR Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by this class of vehicles.

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, CCR Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NOx) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023 with compliance resulting in this class of vehicles using petroleum-based fuel in a more efficient manner thereby reducing diesel fuel consumption.

CARB is responsible for enforcing CCR Title 13 Sections 2449(d)(3) and 2485, which limit idling from both on-road and off-road diesel-powered equipment to no greater than five minutes at any location. Reducing

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28 CARB, California's Advanced Clean Cars Program, [www.arb.ca.gov/msprog/acc/acc.htm](http://www.arb.ca.gov/msprog/acc/acc.htm). Accessed July 2021.

idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

### ***Sustainable Communities Strategy***

SB 375, the Sustainable Communities and Climate Protection Act, coordinates land use planning, regional transportation plans, and funding priorities to reduce GHG emissions from passenger vehicles through better-integrated regional transportation, land use, and housing planning that provides easier access to jobs, services, public transit, and active transportation options. These actions achieve their objectives in part through increased energy efficiency. Specific to energy conservation, electric vehicles, natural gas vehicles, transit/rail; more compact development patterns that reduce vehicle travel also demand less energy per capita. Reducing vehicle travel also reduces energy related to producing and distributing fuels and vehicles as well as the construction and maintenance of roads.

### ***California Environmental Quality Act***

In accordance with Appendix F and G of the CEQA Guidelines, and in order to ensure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (PRC Section 21100(b)(3)). The 2020 update to Appendix G of the CEQA Guidelines now provides that if a project would result in potentially significant environmental effects due to wasteful, inefficient, or unnecessary consumption of energy resources, or conflict with or obstruct a State or local plan for renewable energy or energy efficiency, then an EIR shall be prepared for the project that includes mitigation measures for that energy use. The EIR's analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project as further described below under Appendix F of the CEQA Guidelines.

- Appendix F of the CEQA Guidelines provides a list of energy-related topics that may be discussed in an EIR, where topics are applicable or relevant to the project, including:
- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;



- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

## Regional

### ***Southern California Association of Governments***

SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) presents a long-term transportation vision through the year 2040 for the six-county region of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.<sup>29</sup> The 2016 RTP/SCS includes land use strategies that focus on urban infill growth and walkable, mixed-use communities in existing urbanized and opportunity areas. More mixed-use, walkable, and urban infill development would be expected to accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single-family homes, as well as more compact commercial building types. More compact development patterns that reduce vehicle travel also demand less water per capita and reduce conversion of natural and working lands. Furthermore, the 2016 RTP/SCS includes transportation investments and land use strategies that encourage carpooling, increase transit use, active transportation opportunities, and promote more walkable and mixed-use communities, which would potentially help to reduce vehicle travel, ultimately reducing the consumption of petroleum-based fuels and the energy demands necessary for producing and distributing fuels and vehicles, as well as the construction and maintenance of roads. On September 3, 2020, SCAG's Regional Council approved and adopted the 2020-2045 RTP/SCS (Connect SoCal) which, similar to the 2016-2040 RTP/SCS, sets forth goals, policies, and programs intended to reduce GHG emissions, improve active transportation, and promote development near existing transportation networks. The 2020-2045 RTP/SCS focuses on a more prosperous mobile approach through implementing planning strategies that focus on transportation networks.<sup>30</sup>

## Local

### ***Municipal Green Building Policy***

On May 15, 2012 the City adopted a Municipal Green Building Policy to provide guidance and leadership in the development of sustainable green building practices. The Municipal Green Building Policy incorporates United States Green Building Council (USGBC) green building standards for all new municipal

29 Southern California Association of Governments (SCAG), 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, <http://scagrtpscsc.net/Pages/FINAL2016RTPSCS.aspx>. Accessed July 2021.

30 Southern California Association of Governments (SCAG), Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft, Chapter 1, <https://scag.ca.gov/connect-socal>. Accessed July 2021.

buildings greater than 2,000 square feet. Moreover, the Municipal Green Building Policy encourages the utilization of USGBC LEED standards for new private developments, and requires all projects to comply with CALGreen.

### ***Electric Vehicle Charging Station Policy***

On December 11, 2018 the City adopted an Electric Vehicle Charging Station Policy to provide guidance and leadership to promote installation of electric vehicle (EV) chargers and charging stations citywide where practicable.<sup>31</sup> The Electric Vehicle Charging Station Policy is intended to provide leadership and guidance through a commitment by the City to endeavor to exceed minimum applicable building standards regarding EV chargers by installing EV chargers in all municipal development where practicable and by encouraging, but not requiring installation of EV chargers in private sector development.

## **4. ENVIRONMENTAL IMPACTS**

### **Thresholds of Significance**

To assist in determining whether the proposed Project would have a significant effect on the environment, the proposed Project may be deemed to have a significant impact related to energy resources if it would:

**Threshold ENE-1:**      **Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

**Threshold ENE-2:**      **Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

### **Methodology**

The adoption of the 2021-2029 Housing Element would not approve any development projects or propose any specific development. However, the following methodology and calculations will be used to analyze for the impacts of development at identified Housing Sites, in the event the sites are developed, to help determine the feasibility for development at each Housing Site at the identified maximum build out, in accordance with Government Code Section 65583.2(c).

### **Construction**

Electricity usage associated with the supply and conveyance of water used for dust control during construction was calculated using CalEEMod. Developed by the California Air Pollution Control Officers Association (CAPCOA), CalEEMod is a Statewide land use emissions computer model that estimates

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31 City of Signal Hill Policy and Procedure, Electric Vehicle Charging Station Policy, adopted December 18, 2018.

construction and operational emissions from a variety of land use projects.<sup>32</sup> This section utilizes the GHG worksheets and CalEEMod output data found in **Appendix C** to this Draft EIR. Electricity used to power lighting, electronic equipment, and other construction activities necessitating electrical power would be temporary, limited, and would cease upon the completion of construction. It is assumed that the Housing Sites would not be developed concurrently. In terms of natural gas, construction activities typically do not involve the consumption of natural gas, and, as such, natural gas consumption associated with construction activities was assumed to be negligible.

Fuel consumption from on-site off-road heavy-duty construction equipment was calculated based on the equipment mix and usage factors provided in the CalEEMod construction output files included in **Appendix C** of this Draft EIR. The total horsepower was then multiplied by fuel usage estimates per horsepower-hour included in Table A9-3-E of the South Coast Air Quality Management District's (SCAQMD) CEQA Air Quality Handbook. Fuel consumption from construction worker, vendor, and delivery trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total VMT was then calculated for each type of construction-related trip and divided by the corresponding county-specific miles per gallon factor using CARB's EMFAC 2017 model, which provides the total annual VMT and fuel consumed for each vehicle type. Consistent with CalEEMod, construction worker trips were assumed to include 50 percent light duty gasoline automobiles and 50 percent light duty gasoline trucks. Construction vendor and delivery trucks were assumed to be heavy-duty diesel trucks. Refer to **Appendix C** of this Draft EIR for detailed calculations.

## ***Operation***

Operation of the Housing Sites' potential energy consumption analyzed the anticipated future demand of the proposed uses. The anticipated electricity and natural gas demands during operation are based on the CalEEMod output data found in **Appendix C** to this Draft EIR. Potential petroleum impacts are associated with operational vehicle trips. Daily trip generation used in this analysis was based on the air quality worksheets and CalEEMod output data found in **Appendix C** to this Draft EIR. Because CalEEMod does not directly estimate fuel consumption, fuel rate and VMT data from CARB's EMFAC 2017 model were used to develop fuel-efficiency factors for gasoline and diesel fuel, in units of miles per gallon. Based on the Project's annual VMT forecast, gasoline and diesel consumption rates were calculated using the County-specific miles per gallon based on the EMFAC 2017 model. Trip rate and trip length data from CalEEMod were used to estimate the total VMT of on-road motor vehicles that would occur from operational uses. The fuel-efficiency factors were applied to the estimated VMT to determine the quantity of gasoline and diesel that would be used annually. The vehicle fleet mix for vehicles anticipated to visit the Housing Sites

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32 California Air Pollution Control Officers Association, CalEEMod (2020), <http://www.caleemod.com>. Accessed July 2021.

was calculated based on the EMFAC 2017 model for the County and was anticipated to be 93 percent gasoline and 7 percent diesel fuel. Supporting calculations are provided in **Appendix C** of this Draft EIR. These calculations were used to determine if development of the Housing Sites would cause the wasteful, inefficient and/or unnecessary consumption of energy as required by Appendix F of the CEQA Guidelines.

## Environmental Impacts

**Threshold ENE-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

As discussed previously, development of the Housing Sites would consume energy during construction and operational activities. Sources of energy for these activities include electricity usage, natural gas consumption, and transportation fuels such as diesel and gasoline. The analysis below includes the Housing Site developments' energy requirements and energy use efficiencies by fuel type for Housing Site construction and operations. For purposes of this analysis, Housing Site maintenance would include activities such as painting, landscaping, and architectural coatings. Energy usage related to Housing Site maintenance activities are included as part of operations energy analysis.

### ***Construction Impacts***

During construction, energy would be consumed in the form of electricity associated with the conveyance of water used for dust control, and on a limited basis, powering lights, electronic equipment, or other construction activities necessitating electrical power. As discussed below, construction activities, including the construction of new buildings and facilities, typically do not involve the consumption of natural gas. Construction would also consume energy in the form of petroleum-based fuels associated with the use of off-road construction vehicles and equipment within the Housing Sites, construction worker travel, haul trips, and delivery trips.

As shown in **Table 4.3-1: Summary of Energy Use During Construction** and discussed below, a total of approximately 4,054 kilowatt-hours (kWh) of electricity, 310,232 gallons of diesel fuel, and 117,173 gallons of gasoline is estimated to be consumed during construction of the Housing Sites.

**Table 4.3-1**  
**Summary of Energy Use During Construction**

Housing Site	Electricity (kWh)	Transportation Fuel (gallons)	
		Diesel	Gasoline
Orange Bluff	1,087	92,896	42,309
Walnut Bluff	793	31,959	8,382
Town Center Northwest	1,087	119,982	53,346
Heritage Square	1,087	65,395	13,136
<b>Project Total</b>	<b>4,054</b>	<b>310,232</b>	<b>117,173</b>

Source: Refer to **Appendix C** for detailed calculations.

## Electricity

During construction, electricity would be consumed to supply and convey water for dust control and, on a limited basis, may be used to power lighting, electronic equipment, and other construction activities necessitating electrical power. Electricity would be supplied to the Housing Sites by SCE distribution infrastructure and would be obtained from existing substations and electrical lines in and around the Housing Sites.

As shown in **Table 4.3-1**, the total electricity used during construction is approximately 4,054 kWh. However, it is assumed that the Housing Sites would not be developed concurrently. As such, the maximum electricity anticipated to be used at one time during construction of the Housing Sites is approximately 1,087 kWh. Moreover, the electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Additionally, Title 24 requirements would apply to construction lighting if duration were to exceed 120 days, which includes limits on the wattage allowed per specified area for energy conservation. Due to the relatively short duration of the construction process, and the fact that the extent of electricity consumption is inherent to construction projects of this size and nature, electricity consumption impacts would not be considered excessive or substantial with respect to regional supplies. Therefore, construction of the Housing Sites would not result in wasteful, inefficient or unnecessary consumption of electricity and impacts would be less than significant.

## Natural Gas

Construction activities, including the construction of new buildings and facilities, typically do not involve the consumption of natural gas. Accordingly, natural gas would likely not be needed to support

construction activities; thus, there would be little to no demand generated by construction. Therefore, construction of the Housing Sites would not result in wasteful, inefficient or unnecessary consumption of natural gas and impacts would be less than significant.

### **Transportation Energy**

Housing Site construction would consume energy in the form of petroleum-based fuels associated with use of off-road construction vehicles and equipment on the Housing Sites, construction worker travel to and from the Housing Sites, and delivery and haul truck trips (e.g., for deliveries of construction supplies and materials).

The petroleum-based fuel use summary provided in **Table 4.3-1** represents the amount of transportation energy that could potentially be consumed during construction based on a conservative set of assumptions. As shown, on- and off-road vehicles would consume an estimated 427,405 gallons of petroleum (117,173 gallons of gasoline and 310,232 gallons of diesel fuel) throughout the Housing Sites' construction periods. For purposes of comparison, the EIA forecasts a national oil supply of 20.39 million barrels (mb) per day in 2022, which is the earliest year construction could begin on any given Housing Site.<sup>33</sup> This equates to approximately 7,472 mb per year or 312,579 million gallons (mg) per year. Construction of the Housing Sites would account for less than 0.01 percent of the projected annual oil supply in 2022.

Due to the relatively short duration of the construction process, and the fact that the extent of fuel consumption is inherent to construction projects of this size and nature, fuel consumption impacts would not be considered excessive or substantial with respect to regional fuel supplies. The energy demands during construction would be typical of construction projects of this size and would not necessitate additional energy facilities or distribution infrastructure. Construction of the Housing Sites will also comply with Sections 2485 in Title 13 of the California Code of Regulations, which requires the idling of all diesel-fueled, commercial vehicles be limited to five minutes at any location. As a result, construction of the Housing Sites would not result in inefficient, or unnecessary consumption of transportation resources during construction. Accordingly, transportation resource demands during construction would be less than significant.

### **Operation**

During operation of the Housing Sites, energy would be consumed for multiple purposes associated with the proposed residential uses, including, but not limited to, heating/ventilating/air conditioning (HVAC);

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33 EIA, Annual Energy Outlook 2020: Table 11. Petroleum and Other Liquids Supply and Disposition, <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0>, Accessed July 2021.

refrigeration; lighting; and the use of electronics, equipment, and machinery. Energy would also be consumed during operation of the Housing Sites in the form of water usage, solid waste disposal, and vehicle trips, among others. As shown in **Table 4.3-2: Summary of Annual Energy Use During Operation**, the Housing Sites' energy demand would be approximately 1,533,221 kWh of electricity per year and 4,516,770 kBTU of natural gas per year or 11,933 cf (0.01 MMcf) per day.<sup>34</sup> The combined uses at the sites would consume 31,996 gallons of diesel fuel per year and 162,831 gallons of gasoline per year. These calculations incorporate regulatory requirements established by the California Building Code related to water and energy conservation, water quality.

### Electricity

As shown in **Table 4.3-2**, buildout of the Housing Sites would result in a projected increase in the on-site demand for electricity, totaling 4,603,393 kWh (4.6 GWh) per year. SCE estimates that electricity consumption within its planning area will vary between approximately 120,000 GWh annually by 2022, to approximately 128,000 GWh annually by 2030.<sup>35</sup> The Housing Site electricity usage would account for less than 0.01 percent of the annual consumption in SCE's planning area.<sup>36</sup>

**Table 4.3-2**  
**Summary of Annual Energy Use During Operation**

Housing Site	Electricity (kWh/yr)	Natural Gas (kBTU/yr)	Transportation Fuel (gallons/yr)	
			Diesel	Gasoline
Orange Bluff	1,489,131	3,854,640	44,470	241,515
Walnut Bluff	454,312	1,175,990	13,836	75,522
Town Center Northwest	1,667,252	3,531,160	40,241	218,547
Heritage Square	992,698	1,014,063	10,852	58,940
<b>Project Total</b>	<b>4,603,393</b>	<b>9,575,853</b>	<b>109,399</b>	<b>594,524</b>

Source: Refer to **Appendix C-1** for detailed calculations.

In addition to complying with Title 24 and CALGreen, operation of the Housing Sites would provide means for indirect energy savings, such as permitting individual solar panels to be applied to the proposed residential uses. This would be installed in compliance with Title 24 Section 110.10, which includes mandatory regulations for solar-ready buildings and would not preclude the use of alternate energy

34 The conversion of kBTU to cubic feet uses the factor of 1 cf to 1.037 kBTU. Based on 365 days per year.

35 CEC, Demand Analysis Office, California Energy Demand 2018-2030 Revised Forecast, <https://efiling.energy.ca.gov/getdocument.aspx?tn=223244>. Accessed July 2021.

36 4.6 GWh/ 120,000 GWh = 0.00004

sources. Therefore, operation of the Housing Sites would not result in wasteful, inefficient or unnecessary consumption of electricity and impacts would be less than significant.

### Natural Gas

As shown in **Table 4.3-2**, with compliance with Title 24 standards and applicable CALGreen requirements, buildout of the Housing Sites is projected to generate an on-site demand for natural gas totaling 9,575,853 kBTU per year or 26,235 cf (0.03 MMcf) per day.<sup>37</sup> Based on the 2020 California Gas Report, LBER is expected to supply 26.3 MMcf of natural gas per day between the years 2022 to 2035.<sup>38</sup> Operation of the Housing Sites would account for approximately 0.1 percent of the daily forecasted consumption in LBER's planning area. Per Title 24, new appliances associated with the proposed uses would be efficient and reduce unnecessary and wasteful consumption of natural gas during operation. Therefore, operation of the Housing Sites would not result in wasteful, inefficient or unnecessary consumption of natural gas and impacts would be less than significant.

### Transportation Energy

As shown in **Table 4.3-2** above, buildout of the Housing Sites is projected to generate a net demand of 703,923 gallons of transportation fuel. For purposes of comparison, the EIA forecasts a national oil supply of 17.7 mb/d from 2022 to 2030.<sup>39</sup> This equates to approximately 6,461 mb/y or 271,362 mg/y.<sup>40</sup> Operation of the Housing Sites would account for less than 0.01 percent of the projected annual oil supply between 2022 and 2030.

During operation, traffic associated with the Housing Sites would result in the consumption of petroleum-based fuels due to vehicular travel to and from the developed sites. Vehicular use during operation would be limited to those necessary to ensure the function of the residential developments, including trash pickup, commutes by employees of the development, commutes by regular upkeep and repair crews, and commutes by USPS personnel. Activities such as trash pickup would be consolidated to limit the number of necessary trips made by local waste collectors. During the operational lifetime of the Housing Site developments, newer vehicles sold on the market would be required to comply with CAFE fuel economy standards expected to incrementally take effect. This would effectively reduce transportation energy use by commuters and maintenance crew at the development. Accordingly, fuel consumption is anticipated to decrease each year through implementation of regulation that require higher energy efficiencies and

37 1 cubic foot (1 cf) holds about 1,000 Btu, or 1 kBTU. Based on 365 days per year.

38 California Public Utilities Commission, 2020 California Gas Report, [https://www.socalgas.com/sites/default/files/2020-10/2020\\_California\\_Gas\\_Report\\_Joint\\_Utility\\_Biennial\\_Comprehensive\\_Filing.pdf](https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf). Accessed July 2021.

39 U.S. EIA, Annual Energy Outlook 2020, Table 11. Petroleum and Other Liquids Supply and Disposition, <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=11-AEO2020&cases=ref2020&sourcekey=0>. Accessed July 2021.

40 One oil barrel is equivalent to 42 gallons.



higher efficient and alternative fueled vehicles. As the operation activities would be limited to those necessary for the function and upkeep for the development, and more efficient vehicles are expected in future years of Housing Sites' operation, operation of the Housing Sites would not result in wasteful, inefficient or unnecessary consumption of transportation energy and impacts would be less than significant.

### ***Summary of Energy Resource Consumption***

CEQA Guidelines Appendix F recommends a quantification of the Housing Site developments' energy requirements and its energy use efficiencies by amount and fuel type for each stage of the development's life cycle, including construction, operation, maintenance, and/or removal. The developments' energy requirements were calculated based on land use inputs from CalEEMod for electricity and natural gas usage. The calculations also considered energy efficiency measures, such as Title 24, 2016 CALGreen, and vehicle fuel economy standards. As energy consumption during construction activities would be relatively negligible, development of the Housing Sites is not anticipated to affect regional energy consumption in years during the construction period. In summary, energy consumption during Housing Site construction and operations in the context of regional supplies would be relatively negligible and energy requirements are within SCE's and LBER's forecasted supply delivery capacity. Additionally, electricity demand during construction and operation of the Housing Site developments would have a negligible effect on the overall capacity of SCE's power grid base peak demand conditions and LBER's forecasted demand. Moreover, the Housing Sites' gas and diesel fuel demand related to vehicle travel and on-site operations would account for a small percentage of the forecasted gas and diesel consumption.

Furthermore, these forecasts of energy consumption are likely to overstate the actual Housing Site development consumption as it is anticipated that the recent trend of stricter regulatory requirements with regard to energy efficiency that have occurred over the last twenty years would continue through the implementation of the 2021-2029 Housing Element and into the future, such as more energy efficient Title 24 requirements, as well as energy efficiency requirements related to achieving the SB 350 goals to double energy efficiency standards by the year 2030, that would occur throughout the construction and operation of the Housing Sites. As electricity and natural gas usage at the Housing Sites would comply with Title 24 standards as well as CalGreen and the City's green building program requirements, Housing Sites' construction and operations would comply with applicable energy standards with regards to electricity and natural gas usage.

Trucks and equipment used during proposed construction activities would comply with CARB's anti-idling regulations, as well as the In-Use Off-Road Diesel-Fueled Fleets regulation. Although these regulations are focused on reducing criteria pollutant emissions, compliance with these regulations would also result in a

more efficient use of construction-related fuel consumption. In addition, during Housing Site operations, vehicles traveling to and from the sites would comply with CAFE fuel economy standards as well as with Pavley standards and LCFS, which are designed to reduce vehicle GHG emissions but would also result in fuel savings in addition to CAFE standards. Therefore, Housing Site construction and operational activities would comply with existing energy standards with regards to transportation fuel consumption.

In terms of transportation-related energy usage, the Housing Sites would be consistent with the energy efficiency policies emphasized by the 2016-2040 RTP/SCS and the 2020-2045 RTP/SCS. Specifically, the Housing Sites would provide housing in close proximity to public transit. Per SCAG, all Housing Sites are located within, or partially within a High Quality Transit Area (HQTa) and are served by existing Long Beach Transit (LBT) bus lines along Orange Avenue and E. Willow Street.<sup>41</sup> As a result, these locational attributes create opportunities for reductions in both the number and length of vehicle trips. These reductions in vehicle trips and vehicle miles traveled would reduce gas and diesel fuel consumption. Moreover, during the operational lifetime of the Housing Sites, newer vehicles sold on the market would be required to comply with CAFE fuel economy standards expected to incrementally take effect. Accordingly, fuel consumption is anticipated to decrease each year through implementation of regulations that require higher energy efficiencies.

Based on the above, development of the Housing Sites would not cause wasteful, inefficient, and unnecessary consumption of energy during construction or operation.

**Threshold ENE-2: Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

The proposed Project would comply with applicable regulatory requirements for the design of new buildings, including the provisions set forth in the CALGreen Code and California's Building Energy Efficiency Standards, which have been incorporated into the City's Municipal Code. Moreover, as discussed in **Section 4.9: Population and Housing**, the forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update would be an estimated 1,355 persons at the completion of 517 dwelling units.<sup>42</sup> Including the forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update, the City's population would total approximately 12,955 persons.<sup>43</sup> The City's forecast population of approximately 12,955 persons would be a less than 5% increase over the SCAG's forecast population of 12,500 persons by 2045. Additionally, the housing unit development facilitated by the 2021-2029 Housing Element update

41 (SCAG, Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Data/Map Book, <https://scag.ca.gov/sites/main/files/file-attachments/signalhill.pdf?1604903063>. Accessed July 2021.

42 Calculated from average household population of 2.62 multiplied by 517 units.

43 Adding population of 11,600 in 2016 to 1,355 additional from 2021-2029 Housing Element update.

would be put in place, in part, to accommodate for an existing shortage of housing for the existing population in the region and within the City limits. As such, the development of housing units facilitated by the 2021-2029 Housing Element update is not anticipated to induce new population growth. As such, the increase in population at full build out of housing units facilitated by the 2021-2029 Housing Element update would be comparable to the 2045 SCAG population forecast. The proposed Project is also consistent with the types, intensity and patterns of land use envisioned for this region.

Additionally, as discussed in **Section 4.7: Land Use and Planning** the proposed Project and the development of the identified Housing Sites would be consistent with SCAG's 2020-2045 RTP/SCS goals and policies which directly and indirectly relate to energy conservation, such as encouraging energy efficiency where possible and encouraging land use and growth patterns that facilitate transit and active transportation, respectively. In terms of transportation-related energy conservation, the Housing Site developments would be consistent with the energy efficiency policies emphasized by 2020-2045 RTP/SCS. Development of the Housing Sites include the development of residential uses in areas already served by transit. Per SCAG, the Housing Sites are located within an HQTAs and are served by existing LBT bus lines along Orange Avenue and E. Willow Street.<sup>44</sup> Moreover, the LA Metro Willow Street station is within the vicinity of the Housing Sites. As such, the locations of the Housing Sites encourage a variety of transportation options which would reduce VMTs and transportation-related fuel. During the operational lifetime of the proposed Project, newer vehicles sold on the market would be required to comply with CAFE fuel economy standards expected to incrementally take effect. As such, development of the Housing Sites would not conflict with the energy goals and policies in SCAG's 2020-2045 RTP/SCS.

## 5. MITIGATION MEASURES

Project impacts to energy is less than significant. No mitigation measures are required.

## 6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project impacts to energy is less than significant. No mitigation measures are required.

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44 (SCAG, Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Data/Map Book, <https://scag.ca.gov/sites/main/files/file-attachments/signalhill.pdf?1604903063>. Accessed July 2021.

### 1. INTRODUCTION

This section provides an overview of existing geology and soil conditions in the City of Signal Hill (City) and evaluates the potential for implementation of the Housing Element Update (Project), including potential housing development on Candidate Housing Sites (Housing Sites). This section summarizes existing conditions on the identified Housing Sites and the geology and soils regulatory framework that would apply to development of the Housing Sites. This section also discusses the Housing Site developments' potential impacts concerning geology, soils, and paleontological resources, including risks associated with geologic events, soil erosion and topsoil loss, unstable geologic units or soils, expansive soils, incapable soils, or unique paleontological or geological features. Information and analysis contained in this section is based on the following reports which are contained in **Appendix D**:

- *Revised Geologic Hazards Evaluation Report, Orange Bluff Site*, by Albus and Associates Inc., June 24, 2021 (**Appendix D.1: Orange Bluff Evaluation Report**)
- *Review of Geohazards Report for the Property Referred to as the Orange Bluff Site in the City of Signal Hill, California*, by Earth Consultants International, July 9, 2021 (**Appendix D.2: Review of Orange Bluff Evaluation Report**)
- *Review of Fault Investigation Report for the Property Referred to as the Orange Bluff Site in the City of Signal Hill, California*, by Earth Consultants International, July 9, 2021 (**Appendix D.3: Review of Orange Bluff Fault Investigation Report**)
- *Geologic Hazards Evaluation Report, Walnut Bluff Site*, by Albus and Associates Inc., July 1, 2021 (**Appendix D.4: Walnut Bluff Evaluation Report**)
- *Review of Geohazards Report for the Property Referred to as the Walnut Bluff Site, 2653 Walnut Avenue, Signal Hill, California 90755*, by Earth Consultants International, July 8, 2021 (**Appendix D.5: Review of Walnut Bluff Evaluation Report**)
- *Geologic Hazards Evaluation Report, Town Center Northwest Site*, by Albus and Associates Inc., July 2, 2021 (**Appendix D.6: Town Center NW Evaluation Report**)
- *Review of Geohazards Report for the Property Referred to as the Town Center Northwest Site in the City of Signal Hill, California*, by Earth Consultants International, July 8, 2021 (**Appendix D.7: Review of Town Center NW Evaluation Report**)
- *Revised Geologic Hazards Report, Heritage Square Site*, by Albus and Associates Inc., June 17, 2020 (**Appendix D.8: Heritage Square Evaluation Report**)
- *Review of Geohazards Report for the Property Referred to as the Heritage Square Site in the City of Signal Hill, California*, by Earth Consultants International, July 9, 2021 (**Appendix D.9: Review of Heritage Square Evaluation Report**)

## **2. ENVIRONMENTAL SETTING**

### **Regional Geological Setting**

Signal Hill forms part of a chain of northwest trending low hills and mesas that rise above the Los Angeles Basin within the coastal section of the Peninsular Ranges Geomorphic Province of California. The candidate housing sites are located at the northwest extension of Signal Hill. Signal Hill is a surface expression of the northwesterly Newport-Inglewood structural fault zone (NIFZ). Signal Hill rises about 300 feet above the surrounding terrain and forms a complex northwest-trending dome structure. Signal Hill is bound by two fault segments of the NIFZ; the Cherry Hill fault to the southwest and the Northeast Flank fault to the northeast. Signal Hill and the project vicinity are generally underlain by thousands of feet of sediments that rest above metamorphic basement rock. The current surface expression of the area is Holocene- and Pleistocene-age sediments. These sediments are typically comprised of artificial fill materials, colluvium, and alluvium.

### **Local Geological Setting**

Pleistocene-age bedrock underlies the candidate housing sites. Thin topsoil unit present near the surface where the original grade has not been significantly modified. Artificial fills associated with past oil field activity are present on the candidate housing sites and are present on most oil field properties in the area.

#### ***Artificial Fill***

The artificial fill materials on the candidate housing sites consist of local silty and clayey sand and can contain various amounts of pipe, wood, asphalt, brick and concrete debris. The thickness of artificial fill materials varies depending on previous on-site activity. Artificial fills on the candidate housing sites are ten feet or less in thickness. Fill thicknesses can be much greater in areas with abandoned wells and former sumps.

#### ***Residual Soil***

Residual soil materials (or top soil) were observed on the bedrock material in locations where remnants of the original natural ground surface have been preserved. The residual soil materials generally consist of fine-grained silty sands that are brown in color, damp, loose to medium dense, and porous containing fine roots. The thickness of the topsoil materials on-site are approximately three feet or less.

#### ***Bedrock***

The Inglewood Formation is a shallow marine deposit that underlies the Project area. The formation consists of red unconsolidated sandstone and silty sandstone that is moderately strong, blocky and angular in structure. The San Pedro Formation is a near-shore marine deposit that underlies the entire

project site. This formation consists of gray to pale yellow, slightly micaceous, silty sandstone to sandstone that is dry to damp, slightly friable and moderately hard.

## **Geologic Hazards**

Faults generally produce damage through ground shaking and surface rupture. Seismically induced ground shaking covers a wide area and is greatly influenced by the distance of a site to the seismic source, soil conditions and depth to groundwater. Surface rupture is limited to very near the fault. Other hazards associated with seismically induced ground shaking and ground lurching include landslides, liquefaction, tsunami and seiches, ground subsidence, expansive and/or corrosive soils and soil erosion due to seismic shaking.

### ***Faulting and Seismicity***

The California Geological Survey (CGS) defines an active fault as a fault showing evidence for activity within the last 11,000 years. The candidate housing sites are not located within a State of California Earthquake Fault Zone (EFZ; formerly known as an Alquist-Priolo Special Studies Zone), and there are no known active, potentially active, or inactive faults trending through the candidate housing sites (see **Appendix D**). The nearest known fault is the Cherry Hill fault segment of the NIFZ (south Los Angeles Basin section-southern). The far southwestern portion of the Orange Bluff candidate housing site is located within the vicinity of the Cherry Hill fault, a major segment of the NIFZ, which lies approximately 250 feet away. The southwest portion of the Heritage Square candidate housing site is located within the vicinity of the Cherry Hill fault, approximately 200 feet away. There are no known faults within and/or immediately adjacent to the Walnut Bluff or Town Center North candidate housing sites, as the Cherry Hill fault occurs approximately 500 to 700 feet to the southwest. The potential for surface rupture resulting from the movement of nearby major faults, or currently unknown faults, is considered low.

### ***Ground Shaking***

The candidate housing sites are situated in a seismically active area that has historically been affected by generally moderate to occasionally high levels of ground motion. The sites lie in relatively close proximity to several active faults. Therefore, during the life of the proposed developments, the properties will probably experience similar moderate to occasionally high ground shaking from these fault zones, as well as some background shaking from other seismically active areas of the Southern California region.

### ***Ground Lurching***

Ground lurching is the horizontal and vertical movement of soil or bedrock due to strong ground shaking. Lurching can be both transitory and permanent and often forms cracks in the ground surface. The potential for ground lurching is most prevalent in areas underlain by soft or saturated loose soils but can

also occur on steep slopes comprised of poorly consolidated or fractured rock formations. Horizontal and vertical ground deformation resulting from ground lurching can adversely impact structures and compromise the stability of slopes. The proposed candidate housing sites are anticipated to be constructed to a relatively level condition and are not located immediately adjacent steep or high slopes. Furthermore, the site is not underlain by soft or saturated loose soils or poorly consolidated, fractured bedrock. The potential for future ground lurching associated with strong ground shaking is considered low.

### ***Landslides***

The proposed candidate housing sites have ground surfaces from relatively flat to gently sloping and are not located immediately adjacent to steep terrain. Geologic hazards associated with landslides are not anticipated at the sites. The site is not located within an area identified by the CGS as having potential for seismic slope instability.

### ***Liquefaction***

Liquefaction can occur when a site is located in a zone with seismic activity, on-site soils are cohesionless, groundwater is encountered within 50 feet of the surface, and soil relative densities are less than about 70 percent. Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as those produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops, as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases, and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

### ***Tsunamis and Seiches***

A tsunami is a sea wave generated by large-scale displacements of the ocean floor that causes a sudden surge of water onto the land. Tsunamis are most commonly caused by movement along faults and underwater landslides activated by earthquakes. Seiches are earthquake-induced displacements of water within an enclosed body of water such as a lake. Strong ground motions from an earthquake cause the water to slosh back and forth onto land. The proposed candidate housing sites are elevated more than 113 feet above sea level and are located a substantial distance from a significant body of water within an enclosed basin. The sites are not located within a Tsunami hazard area.<sup>1</sup>

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1 Based on of the Tsunami Hazard Area Map of Los Angeles County prepared by CGS (2021).

### ***Ground Subsidence***

Ground subsidence has been reported in areas of southern California as a result of gas, oil or water extraction, as well as peat oxidation. The proposed candidate housing sites are located in an area known to have experienced ground subsidence in the past largely due to oil extraction. Provided that oil field reservoir management strategies that include subsidence relief continue to be employed in the area, ground subsidence beneath the site that could result in damage to future improvements at the sites is unlikely to occur.

### ***Expansive Soils***

Expansive soils are generally plastic clays that can undergo a substantial increase in volume, with an increase in moisture content, and a substantial decrease in volume, with a decrease in moisture content. Expansive soils can cause uplift pressures that can lead to structural damage. Based on the expansion characteristic of the near surface soils on the candidate housing sites, expansion potential is considered very low to low.

### ***Corrosive Soils***

Corrosive soils possess properties that are reactive with construction materials such as metals and concrete. Generally, soils that contain clays have low electrical resistivity and can cause corrosion of metals in contact with such soils. Soils that contain high amounts of sulfates can cause degradation of concrete. Soils on the candidate housing sites are likely to be moderately to highly corrosive to metals.

### ***Soil Erosion***

Soil erosion is the movement of near-surface soil particles generally by flowing water and in some cases high winds. Sandy soils are generally more susceptible to erosion than clayey soils. Much of proposed candidate housing sites are covered with sandy soils and the relatively flat to very gently sloping terrain makes the sites susceptible to slight soil erosion during periods of significant rainfall.

### ***Paleontological Resources***

Although no paleontological resources have been documented within the Project area, two known prehistoric archaeological sites are within a half-mile. These come from similar geologic units as those that underlay the Project area, but none are found from within the Project boundary (see **Appendix I**).



### 3. REGULATORY SETTING

#### Federal Setting

##### ***Earthquake Hazards Reduction Act***

The United States Congress passed the Earthquake Hazards Reduction Act in 1977 to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program. This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act, which refined the description of agency responsibilities, program goals, and objectives.

##### ***Uniform Building Code***

The Uniform Building Code is published by the International Conference of Building Officials and forms the basis for CBC, as well as approximately half of the State building codes in the U.S. It has been adopted by the California Legislature to address the specific building conditions and structural requirements for California, as well as provide guidance on foundation design and structural engineering for different soil types.

##### ***National Pollutant Discharge Elimination System***

The National Pollution Discharge Elimination System (NPDES) is a program created to implement the Clean Water Act (CWA). In response to the 1987 amendments to the CWA and as part of Phase I of its NPDES permit program, USEPA began requiring NPDES permits for (1) municipal separate storm sewer systems (MS4s) generally serving or located in incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs five acres or more of land. Phase II of USEPA's NPDES permit program, which went into effect in early 2003, extended the requirements for NPDES permits to (1) numerous small MS4s; (2) construction sites of 1 to 5 acres; and (3) industrial facilities owned or operated by small MS4s. In 2009, USEPA published effluent limitation guidelines and new source performance standards for the construction and development industry that became effective in 2010. The NPDES permit program is typically administered by individual authorized states.

USEPA has delegated management of California's NPDES program to the State Water Resources Board (SWRCB) and the nine regional water quality control board (RWQCB) offices that grant permits to regulate point-source discharges of industrial and municipal wastewater into the waters of the United States.

## State Setting

### ***Alquist-Priolo Earthquake Fault Zoning Act***

The Alquist-Priolo Earthquake Fault Zone Act (California PRC Sections 2621–2630) was passed into law following the destructive February 9, 1971, San Fernando earthquake, which was associated with extensive surface fault ruptures that damaged numerous structures. The act provides a mechanism for reducing losses from surface fault rupture on a Statewide basis. The intent of the act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep.

The State Geologist is required to establish and map zones around the surface traces of active faults, which are then distributed to County and City agencies to be incorporated into their land use planning and construction policies. Proposed development needs to be proven through geologic investigation to not be located across active faults before a city or county can permit the implementation of a project. If an active fault is found, development for human occupancy is prohibited within a 50-foot setback from the identified fault. Alquist-Priolo Special Studies Zones are now commonly known as State of California Earthquake Fault Zones. The California Geological Survey (CGS) is responsible for enforcing the Alquist-Priolo Earthquake Fault Zoning Act and enforcing the Seismic Hazards Mapping Act.

### ***Seismic Hazards Mapping Act***

The purpose of the Seismic Hazards Mapping Act is to protect the public from the effects of nonsurface fault rupture earthquake hazards, inducing strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The Seismic Hazards Mapping Act requires delineated maps to be created by the State Geologist to reflect where potential ground shaking, liquefaction, or earthquake-induced landslides may occur.<sup>2</sup> Cities and counties are required to obtain approval for development on nonsurface fault rupture hazard zones and mitigate seismic hazards.

### ***California Building Standards Code, California Code of Regulations***

The California Building Standards Code (CBC) is administered by the California Building Standards Commission (CBSC).<sup>3</sup> The CBC governs all development within the State of California, as amended and adopted by each local jurisdiction. These regulations include provisions for site work, demolition, and construction, which include excavation and grading, as well as provisions for foundations, retaining walls,

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<sup>2</sup> Seismic Hazards Mapping Act, PRC sec. 2690–2699.6.

<sup>3</sup> California Building Standards Commission (CBSC), “Welcome to the California Building Standards Commission,” accessed May 2021, <http://www.bsc.ca.gov/>.

and expansive and compressible soils. The CBC provides guidelines for building design to protect occupants from seismic hazards. The most recent version of the code, the 2019 CBC, went into effect on January 1, 2020.<sup>4</sup> With the shift from seismic zones to seismic design, the CBC philosophy has shifted from “life safety design” to “collapse prevention,” meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site.

In addition, the CBC regulates excavation, foundations, and retaining walls; contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials; and regulates grading activities, including drainage and erosion control.

### **State Water Resources Control Board Construction Storm Water Program**

Created in 1972 by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program is authorized to State governments by the U.S. Environmental Protection Agency (USEPA) to perform permitting, administrative, and enforcement aspects of the program. Construction activities that disturb 1 acre or more of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ). Construction activities subject to compliance include clearing, grading, and excavating. Applicants of regulated construction activities are required to file Notice of Intent and Permit registration Documents with the State Water Resources Control Board. Applicants must prepare a Storm Water Pollution Prevention Plan and demonstrate conformance with applicable construction best management practices (BMPs).

### ***Public Resources Code***

The Public Resources Code (PRC) includes regulations for paleontological resources as described below:

- PRC Section 5097.5: Provides for the protection of paleontological resources and prohibits the removal, destruction, injury, or defacement of paleontological features on any lands under the jurisdiction of State or local authorities.
- PRC Section 30244: Requires reasonable mitigation for impacts on paleontological resources that occur as a result of development.

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<sup>4</sup> California Building Standards Code, 24 California Code of Regulations (CCR).

### ***Society of Vertebrate Paleontology***

Professional paleontologists in California adhere to the guidelines set forth by the Society of Vertebrate Paleontology (SVP) 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. These categories include high, low, undetermined, and no paleontological resource potential (see **Table 4.4-1: Paleontological Sensitivity Categories** below):

**Table 4.4-1**  
**Paleontological Sensitivity Categories**

Resource Potential	Criteria
High Potential (sensitivity)	Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.
Low Potential (sensitivity)	Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.
Undetermined Potential (sensitivity)	Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.
No Potential	Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

## Local Setting

The following Element, and the relevant goals and policies applies to cultural resources within the City.

### ***Signal Hill General Plan Safety Element***

**Goal 1:** Strive to prevent man-made disasters and minimize the potential for natural disasters to impact the community.

**Policy 1.k:** Regulate development in Alquist-Priolo Earthquake Fault Zones consistent with levels of acceptable risk. Require the submission

of geologic and seismic reports, as well as soils engineering reports, in relation to applications for land development permits whenever seismic or geologic problems are suspected.

**Policy 1.I:**

Recognize the need for greater protection and safety of critical use facilities through careful site selection and comprehensive geotechnical evaluation that considers seismic and other geotechnical hazards.

***Signal Hill Municipal Code (SHMC)***

Chapter 15.04.010 California Building Code outlines the City Council adopted building codes and describes the reinforcement of the California Building Code within the City and any exceptions to the CBC.

Chapter 15.04.040 Permits Fees refers to the various permit fees within the City as adopted by City Council.

Section 15.04.090 Appendix Chapter J outlines the various document requirements before permit issuance including construction documents, written record of computations, statement of special inspections, and a geotechnical report. It also describes the permits required to be obtained from the City prior to construction including grading permits

**4. ENVIRONMENTAL IMPACTS**

***Thresholds of Significance***

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to geology and soils if it would:

**Threshold IV. GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

- i) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace? Refer to Division of Mines and Geology Special Publication 42.**
- ii) **Strong seismic ground shaking?**

iii) Seismic-related ground failure, including liquefaction and lateral spreading?

iv) Landslides?

**Threshold IV. GEO-2:** Result in substantial soil erosion or the loss of topsoil?

**Threshold IV. GEO-3:** Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

**Threshold IV. GEO-4:** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

**Threshold IV. GEO-5:** Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

**Threshold IV. GEO-6:** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

## ***Methodology***

To evaluate potential hazards related to geologic and soils conditions, a Geohazards Report for each candidate housing site was prepared by Albus and Associates, and a review of each Geohazards Report for each candidate housing site was prepared by Earth Consultants International. Relevant maps, literature and materials were reviewed, and exploratory trenching was conducted as part of the Geohazards Reports.

## ***Environmental Impacts***

**Threshold IV. GEO-1:** Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace? Refer to Division of Mines and Geology Special Publication 42.

The City is located in a seismically active region (as is the entire Los Angeles Basin). In 1972, the Alquist-Priolo Earthquake Zoning Act was passed in response to the damage sustained in the 1971 San Fernando Earthquake.<sup>5</sup> The Alquist-Priolo Earthquake Fault Zoning Act was adopted to prevent the construction of buildings used for human occupancy on the surface trace of active faults.<sup>6</sup> A list of cities and counties subject to the Alquist-Priolo Earthquake Fault Zones is available on the California Department of Conservation's website.

Trenching that shadows the portion of the property within the Alquist-Priolo Earthquake Fault Zone was conducted for the candidate housing site near the Cherry Hill fault (see **Appendix H.1: Orange Bluff Geohazards Report** and **Appendix H.2: Orange Bluff Geohazards Report Summary**). The trench showed that there are no Holocene-active faults projecting into the site or within 50 feet to the southwest of the site. A few minor fractures were observed in the deeper section of the trench, but these did not extend upward into the soil section and are thus not considered active. Additional trenches were excavated to the south and west of the candidate housing site. These trenches demonstrated that the Cherry Hill fault is approximately 250 feet to the southwest of the site.

The Applicant is required to comply with the California Building Code and Signal Hill Municipal Code Section 15.40 regarding the construction of earthquake resistant buildings which would mitigate foreseeable effects of strong seismic activities in the region. As part of the plan check review process, a soils engineering report that provides design recommendations for the proposed development would be prepared and submitted to the City for approval. A California registered Professional Geologist would observe the geologic conditions during grading to verify the conclusions of the fault investigation (see **Appendix H.9: Fault Rupture Report** and **Appendix H.10: Fault Rupture Report Summary**). If, during grading, faults are observed, the City's Geological Reviewer would be notified immediately and a field meeting to discuss these observations would be held. A final as-graded geological report that summarizes the observations made during construction would be prepared and submitted to the City's Building Official. All habitable structures would be designed with stiffened foundation systems to accommodate minor secondary fracturing associated with ground shaking.

Based on this information, the proposed Project would have a less than significant impact exposing people or structures to adverse effects involving rupture of a known earthquake fault.

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5 California Department of Conservation, Earthquake Fault Map, <https://earthquake.usgs.gov/education/geologicmaps/apfaults.php>. Accessed July 2021.

6 California Department of Conservation, Earthquake Fault Map, <https://earthquake.usgs.gov/education/geologicmaps/apfaults.php>. Accessed July 2021.



## ii) Strong seismic ground shaking?

As described above, the City lies within a region with several active faults and several blind thrust faults. These faults are capable of producing ground shaking from an earthquake. However, there are no active faults known to exist within the Project Site. Since the City lies within a region with several active faults and several blind thrust faults, earthquakes capable of producing ground shaking are anticipated. A major earthquake produced along any of the regional fault systems has the potential to produce strong ground shaking in the City.

The proposed candidate housing sites would likely experience strong seismic ground shaking during their design life, given the proximity to major faults in the Southern California Region. The proposed candidate housing sites would eventually increase the amount of development on site, thereby increasing the number of residents residing in a seismically active region. Since the State is generally located in a seismically active region, all new developments in the State are required to conform to the current seismic design provisions of the California Building Code. The 2019 California Building Code incorporates the latest seismic design standards for structural loads and materials as well as provisions from the National Earthquake Hazards Reduction Program to reduce potential loss from earthquakes and ensure safety of residents on site. Incorporation of seismic design standards would strengthen the structural integrity of the proposed residential buildings and reduce the seismic ground shaking impacts to residents. Local seismic safety requirements contained in the Signal Hill Municipal Code, as well as the applicable recommendations provided in the geotechnical investigations are required by SHMC Section 15.04.090 prior to the issuance of construction permits. All building construction associated with the proposed Project would be subject to the City's existing construction regulations, including the California Building Code as adopted by SHMC in order to minimize any potential impacts from strong seismic ground shaking. Building designs aligned with existing regulations, codes, and the incorporation of recommendations from the geotechnical investigations' report during City's plan check would reduce seismic shaking impacts to future residents to less than significant.

## iii) Seismic-related ground failure, including liquefaction and lateral spreading?

Liquefaction is a process by which sediments below the water table temporarily lose strength and behave as a viscous liquid rather than a solid. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

Groundwater underneath the proposed candidate housing sites is more than 50 feet below the ground surface and the sites are also underlain by relatively dense materials of the Lakewood and San Pedro Formations. The site is not located within a mapped California Geological Survey liquefaction hazard zone. As such, liquefaction is unlikely to occur at the candidate housing sites and liquefaction and lateral spreading impacts would be less than significant.

**iv) Landslides?**

Each candidate housing site is relatively flat to gently sloping and none are located immediately adjacent steep terrain. The sites are not located within an area identified by the California Geological Survey (CGS) as having potential for seismic slope instability. As such, geologic hazards associated with landslides at the proposed candidate housing sites are considered low and impacts would be less than significant.

**Threshold IV. GEO-2: Result in substantial soil erosion or the loss of topsoil?**

Much of proposed candidate housing sites are covered with sandy soils and the relatively flat to very gently sloping terrain makes the sites susceptible to slight soil erosion during periods of significant rainfall. The sandy deposits of the Inglewood and San Pedro Formations underlie the Housing Sites. If exposed at the ground surface or in cut-slopes, soils on the Housing Sites could be susceptible to rills, gullies, and general erosion by running water or strong winds. Grading of the proposed Housing Sites would create a temporary increase in the potential for erosion during construction.

The Signal Hill Municipal Code Chapter 12.16 establishes the framework for the City to control erosion through the management of stormwater and urban runoff. In part, this chapter requires that prior to the issuance of a building or grading permit for a new development or redevelopment project, the City must evaluate the proposed project's erosion and grading requirements, including the appropriate wet weather erosion control plan, stormwater pollution prevention plan, or other plans consistent with countywide development construction guidance provisions to control erosion. These plans are required to demonstrate that stormwater runoff containing sediment is reduced to the maximum extent practicable and that best management practices apply and are required from the time of commencement of construction until receipt of a certificate of occupancy. In addition, construction activities are required to comply with existing erosion control requirements, including the South Coast Air Quality Management District's (SCAQMD) Rule 403, which would reduce the potential for wind erosion through a variety of dust control measures such as covering soil stockpiles, watering exposed soils several times a day, ceasing grading during high winds, and providing temporary soil binders. Housing development resulting from the project must also comply with the conditions of a General Construction Permit, administered by the Los Angeles Regional Water Quality Control Board, pursuant to the National Pollutant Discharge Elimination System, which would reduce water erosion by requiring best management water quality control practices

during construction (e.g., using berms or drainage ditches to divert water around the site; preventing sediment from migrating off the site by using temporary swales, silt fences, or gravel rolls). Compliance with these existing regulatory standards would generally avoid or reduce potential erosion impacts during construction to less than significant.

Once housing development resulting from the project is completed, the currently exposed soils across the project site would be replaced with impervious and landscaped surfaces, which would substantially reduce and, to a large extent, eliminate erosion potential as compared with existing site conditions. With adherence to the mandatory regulations to reduce and control erosion during construction, impacts in relation to substantial soil erosion or the loss of topsoil would be less than significant.

**Threshold IV. GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

As discussed above under Threshold IV.GEO-1, the Housing Sites would not be located in an area susceptible to seismic-related ground failure, including liquefaction and lateral spreading. The Housing Sites are not located in an area designated by the City or State as being prone to landslides. The Housing Sites are within a land subsidence area caused by oil extraction.<sup>7</sup>

#### ***Landslides (On- or Off-Site) and Lateral Spreading***

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of mass wasting, which denotes any down-slope movement of soil and rock under the direct influence of gravity.<sup>8</sup> Seismically induced lateral spreading involves primarily lateral movement of the earth due to ground shaking. Topography on each Housing Site is relatively flat to gently sloping and none are located immediately adjacent to steep terrain. The Housing Sites are not located within an area identified by the California Geological Survey (CGS) as having potential for seismic slope instability. In the absence of significant ground slopes, the potential for seismically induced landslides and lateral spreading to affect the Housing Sites is very low. Local seismic safety requirements contained in the SHMC, as well as the applicable recommendations provided in the geotechnical investigations required by the City's plan check review process would minimize seismic-related hazards such as on- or off-site landslides and lateral spreading prior to issuance of construction permits. Compliance with existing building codes and required studies during design and construction of the future housing developments would reduce seismic-related

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7 USGS, Areas of Land Subsidence in California, [https://ca.water.usgs.gov/land\\_subsidence/california-subsidence-areas.html](https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html), accessed August 2021.

8 USGS, Natural Hazards, [https://www.usgs.gov/faqs/what-a-landslide-and-what-causes-one?qt-news\\_science\\_products=0#qt-news\\_science\\_products](https://www.usgs.gov/faqs/what-a-landslide-and-what-causes-one?qt-news_science_products=0#qt-news_science_products), accessed August 2021.

hazards such as on- or off-site landslides and lateral spreading for future residents to a less than significant level.

### ***Subsidence and Liquefaction***

As discussed under threshold IV.GEO-1, groundwater underneath the proposed Housing Sites is more than 50 feet below the ground surface and the sites are also underlain by relatively dense materials of the Lakewood and San Pedro Formations. The Housing Sites are not located within a mapped California Geological Survey liquefaction hazard zone. As discussed above, the Housing Sites are within a land subsidence area caused by oil extraction. Provided that oil field reservoir management strategies that include subsidence relief continue to be employed in the area, potential ground subsidence beneath the Housing Sites that could result in damage to future construction is considered low.

As mentioned previously, developments in California are required to conform to the current seismic design provisions of the California Building Code. The 2019 California Building Code incorporates the latest seismic design standards for structural loads and materials as well as provisions from the National Earthquake Hazards Reduction Program to reduce potential loss from earthquakes and ensure safety of residents on site. Local seismic safety requirements contained in the SHMC, as well as the applicable recommendations provided in the geotechnical investigations required by the City's plan check review process would minimize seismic-related hazards such as subsidence and liquefaction prior to issuance of construction permits. Compliance with existing building codes and required studies during design and construction of the Project would reduce seismic-related hazards such as subsidence and liquefaction for future residents to a less than significant level.

### ***Seismically Induced Slope Instability and Collapse***

Seismically induced landslides or slope collapse are common occurrences during or soon after earthquakes. As mentioned previously, the Housing Sites are not within any earthquake-induced landslide areas due the relatively flat ground conditions of the Site topography. In the absence of significant ground slopes, the potential for seismically induced landslides and collapse to affect the Housing Sites is considered to be very low; and local seismic safety requirements contained in the SHMC, as well as the applicable recommendations provided in the geotechnical investigations required by the City's plan check review process, would minimize seismic-related hazards, such as seismically induced slope instability or collapse prior to issuance of construction permits. Compliance with existing building codes and required studies during design and construction of the Project would reduce seismic-related hazards such as seismically induced slope instability and collapse for future residents to a less than significant level.

In conclusion, local seismic safety requirements contained in the SHMC, as well as the applicable recommendations provided in the geotechnical investigations required by the City's plan check review process, would minimize seismic-related hazards prior to issuance of construction permits. Compliance with existing building codes and required studies during design and construction of the future housing developments would reduce seismic-related hazards such as on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse for future residents to a less than significant level.

**Threshold IV. GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?**

During inclement weather and/or excessive landscape watering, moisture infiltrates the soil and causes the soil to heave (expansion). When drying occurs the soils shrink (contraction). Repeated cycles of expansion and contraction of soils can cause pavement, concrete slabs on grade, and foundations to crack. Soil expansion potential is considered very low to low based on the expansion characteristic of the near-surface soils on the Housing Sites. A project-specific geotechnical study that addresses the geologic and geotechnical conditions as they pertain to the proposed design will be required as part of the standard plan check process in accordance with the California Building Code. Compliance with this process would ensure impacts were less than significant.

**Threshold IV. GEO-5: Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

The Project Site is located in a developed portion of the City and is served by a wastewater collection, conveyance, and treatment system operated by the City. All the wastewater generated by the future housing developments would be discharged into the City's municipal sewer system. No septic systems or other soil-based wastewater disposal systems would be part of the proposed housing developments. Therefore, the proposed housing developments would have no impact related to soils incapable of supporting use of septic tanks or alternative wastewater disposal systems.

**Threshold IV. GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

Paleontological resources are the fossilized remains of organisms that have lived in a region in the geologic past and whose remains are found in the accompanying geologic strata. This type of fossil record represents the primary source of information on ancient life forms, since the majority of species that have existed on earth from this era are extinct. PRC Section 5097.5 specifies that any unauthorized removal of

paleontological remains is a misdemeanor. Furthermore, California Penal Code Section 622.5 includes penalties for damage or removal of paleontological resources.

Based on a records search conducted by PaleoWest (see **Appendix I**), there are no fossil localities that lie directly within the boundaries of any of the proposed Housing Sites. However, the records search indicates that within the Project area, two known prehistoric archaeological sites are within a half-mile buffer. Since the proposed Project requires excavations for a housing development, new ground disturbances are anticipated. Ground disturbing activities portions of the Project may result in significant impacts to paleontological resources, such as destruction, damage, or loss of scientifically important paleontological resources. As such, Project impacts are potentially significant due to the unknown presence of subsurface paleontological resources..

## 5. MITIGATION MEASURES

The following mitigation measure is proposed to reduce potential impacts to paleontological resources to a less than significant level:

**MM GEO-1:** If paleontological resources are uncovered during construction activities, all ground-disturbing activities in the area of the find shall cease until a qualified paleontologist has evaluated the find, and identified the appropriate course of action in accordance with federal, state, and local The qualified paleontologist shall prepare a report according to current professional standards. The report shall be submitted to the City for review and approval. Project activities shall not proceed until the analysis and treatment of on-site paleontological resources has been approved by the City.

## 6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of **MM GEO-1** would ensure that any paleontological resources would be identified before they are damaged or destroyed and are properly evaluated and treated. This would ensure potential impacts to paleontological resources would be less than significant.

### 1. INTRODUCTION

This section of the Draft EIR provides a discussion of global climate change, existing regulations pertaining to climate change, and an inventory of the greenhouse gas (GHG) emissions that would result from the Signal Hill Housing Element (Project), including the Candidate Housing Sites (Housing Sites). Calculation worksheets, assumptions, and model outputs used in the analysis are contained in **Appendix E: Greenhouse Gas Emissions Model Data** of this Draft EIR.

### 2. ENVIRONMENTAL SETTING

#### Greenhouse Gases and Climate Change

##### *Global Context*

GHGs are global pollutants that have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for a long enough time to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO<sub>2</sub> is currently emitted into the atmosphere than is avoided or sequestered. CO<sub>2</sub> sinks, or reservoirs, include vegetation and the ocean, which absorb CO<sub>2</sub> through photosynthesis and dissolution, respectively. These are two of the most common processes of CO<sub>2</sub> sequestration. Of the total annual human-caused CO<sub>2</sub> emissions, approximately 54 percent is sequestered within a year through ocean uptake, northern hemisphere forest regrowth, and other terrestrial sinks; the remaining 46 percent of human-caused CO<sub>2</sub> emissions are stored in the atmosphere.

Similarly, the effects of GHGs are borne globally (sea-level rise, hurricanes, droughts, etc.), as opposed to the localized air quality effects of criteria air pollutants and toxic air contaminants (TACs). The quantity of GHGs that it takes to ultimately result in climate change is not precisely known, but that quantity is enormous. No single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or microclimates. However, it is the combined GHG contributions per project that create an impact.

##### *Greenhouse Effect*

GHGs play a critical role in determining the Earth's surface temperature because these gases absorb solar radiation. Solar radiation enters the Earth's atmosphere from space. A portion of the radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected back into space. The radiation absorbed by the Earth is reradiated as lower-frequency infrared radiation, which is then selectively absorbed by GHGs in the Earth's atmosphere. As a result, the greater the amount of GHGs in the atmosphere, the greater the amount of infrared radiation trapped, resulting in a warming of the atmosphere. This phenomenon is commonly referred to as the "greenhouse effect." Scientists have

speculated that increased GHG emissions from human activity (anthropogenic) could lead to a less habitable climate. Anthropogenic GHG emissions leading to atmospheric levels in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the Earth's atmosphere and oceans, with corresponding effects on global air and water circulation patterns and climate. CO<sub>2</sub> emissions associated with fossil fuel combustion are the primary contributors to human-induced emissions.

### ***Climate Change Effects for California***

Climate change could affect environmental conditions in California in a variety of ways. One effect of climate change is rising sea levels. Sea levels along the California coast rose approximately 7 inches during the last century, and they are predicted to rise an additional 7 to 22 inches by 2100, depending on the future levels of GHG emissions. The effects of a rise in sea level could include increased coastal flooding, saltwater intrusion (especially a concern in the low-lying Sacramento–San Joaquin Delta, where pumps delivering potable water to Southern California could be threatened), and disruption of wetlands.

As the State's climate changes over time, the range of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the State if suitable conditions are no longer available. Additional concerns associated with climate change include a reduction in the snowpack, leading to less overall water storage in the mountains (the largest "reservoir" in the State), and increased risk of wildfires caused by changes in rainfall patterns and plant communities. Changes in the climate can also impact California's weather patterns and rainfall.

### ***Sources of Greenhouse Gas Emissions***

GHGs are the result of both natural and anthropogenic activities. With respect to anthropogenic activities, motor vehicle travel, air travel, consumption of fossil fuels for power generation, industrial processes, heating and cooling, landfills, agriculture, and wildfire are the primary sources of GHG emissions. Additionally, land use decisions and future development projects pursuant to implementation of a general plan can affect the generation of GHG emissions from multiple sectors, resulting in direct or indirect GHG emissions. For example, electricity consumed in the lighting and heating of buildings is an indirect source of GHG emissions because it requires electricity from power plants, which emits GHG directly into the atmosphere. Conversely, tailpipe emissions from the use of vehicles generates direct GHG emissions.

GHGs are a group of emissions that include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, and nitrogen trifluoride (NF<sub>3</sub>). Carbon dioxide is the most abundant GHG. As stated above, other GHGs are less abundant, but have higher global warming potential than CO<sub>2</sub>. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO<sub>2</sub>; denoted as CO<sub>2</sub>e. A general description of GHGs discussed is provided in **Table 4.5-1: Description of Identified Greenhouse Gases.**



**Table 4.5-1**  
**Description of Identified Greenhouse Gases**

GHG	General Description
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	An odorless, colorless GHG that has both natural and anthropocentric sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO <sub>2</sub> are burning coal, oil, natural gas, and wood.
<b>Methane (CH<sub>4</sub>)</b>	A flammable gas and is the main component of natural gas. When one molecule of CH <sub>4</sub> is burned in the presence of oxygen, one molecule of CO <sub>2</sub> and two molecules of water are released. A natural source of CH <sub>4</sub> is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH <sub>4</sub> , which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
<b>Nitrous Oxide (N<sub>2</sub>O)</b>	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N <sub>2</sub> O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, and as an aerosol spray propellant.
<b>Hydrofluorocarbons (HFCs)</b>	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH <sub>4</sub> or ethane (C <sub>2</sub> H <sub>6</sub> ) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic man-made chemicals that are used as substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
<b>Perfluorinated Chemicals (PFCs)</b>	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semi-conduction manufacturing.
<b>Sulfur Hexafluoride (SF<sub>6</sub>)</b>	An inorganic, odorless, colorless, nontoxic, and nonflammable gas. SF <sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.
<b>Nitrogen Trifluoride (NF<sub>3</sub>)</b>	An inorganic, nontoxic, odorless, nonflammable gas. NF <sub>3</sub> is used in the manufacture of semiconductors, as an oxidizer of high energy fuels, for the preparation of tetrafluoro hydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.

<sup>a</sup> GHGs identified in this table are ones identified in the Kyoto protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.

## Greenhouse Gas Emissions Inventory and Trends

### Existing Statewide GHG Emissions

California is the second largest contributor of GHGs in the United States and the 16th largest in the world.<sup>1</sup> In 2018, California produced 425.4 million metric tons of carbon dioxide equivalents (MMTCO<sub>2</sub>e), including imported electricity and excluding combustion of international fuels and carbon sinks or storage. The major source of GHGs in California is transportation, contributing to 40 percent of the State's total GHG emissions. The Statewide inventory of GHGs by sector is shown in **Table 4.5-2: California GHG Inventory 2010-2018**.

**Table 4.5-2**  
**California GHG Inventory 2010–2018**

Main Sector	Emissions (MMTCO <sub>2</sub> e)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Transportation <sup>a</sup>	165.1	161.8	161.4	161.2	162.6	166.2	169.8	171.0	169.5
Electric Power	90.3	89.2	98.2	91.4	88.9	84.8	68.6	62.1	63.1
Industrial <sup>b</sup>	91.0	89.3	88.9	91.6	92.4	90.1	88.9	88.7	89.2
Commercial and Residential	45.9	46.0	43.5	44.2	38.2	38.8	40.6	41.3	41.4
Agriculture	33.7	34.4	35.5	33.8	34.8	33.4	33.2	32.3	32.6
High GWP <sup>c,d</sup>	13.5	14.5	15.5	16.8	17.7	18.6	19.3	20.0	20.5
Recycled and waste	8.7	8.7	8.7	8.7	8.8	8.8	8.9	9.0	9.1
<b>Total Emissions</b>	<b>448.2</b>	<b>443.9</b>	<b>451.7</b>	<b>447.7</b>	<b>443.4</b>	<b>440.7</b>	<b>429.3</b>	<b>424.4</b>	<b>425.4</b>

Source: CARB, GHG Current California Emission Inventory Data, <https://ww2.arb.ca.gov/ghg-inventory-data>. Accessed July 2021.

<sup>a</sup> Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations.

<sup>b</sup> Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions.

<sup>c</sup> These categories are listed in the Industrial sector of CARB's GHG Emission Inventory sectors.

<sup>d</sup> This category is listed in the Electric Power sector of CARB's GHG Emission Inventory sectors.

Note: MMTCO<sub>2</sub>e - million metric tons of carbon dioxide equivalent emissions

1 California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report, CEC-600-2006-013-SF (December 2006).

### 3. REGULATORY SETTING

#### Federal

##### *Federal Clean Air Act*

The US Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*<sup>2</sup> that carbon dioxide (CO<sub>2</sub>) and other GHGs are pollutants under the federal Clean Air Act (CAA), which the US Environmental Protection Agency (USEPA) must regulate if it determines they pose an endangerment to public health or welfare.<sup>3</sup> The Court did not mandate that the USEPA enact regulations to reduce GHG emissions. Instead, the Court found that the USEPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a “reasonable explanation” for not determining that GHGs contribute to climate change.

On April 17, 2009, the USEPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009-0171.<sup>4</sup> The USEPA stated that high atmospheric levels of GHGs “are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes.” The USEPA further found that “atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act.” The final rule was effective on January 14, 2010.<sup>5</sup> While these findings alone did not impose any requirements on industry or other entities, this action was a prerequisite to regulatory actions by the USEPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

In response, the USEPA promulgated a regulation to require reporting of all GHG emissions from all sectors of the economy. The final rule applies to fossil fuel suppliers and industrial gas suppliers, direct greenhouse gas emitters and manufacturers of heavy-duty and off-road vehicles and engines. The rule

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2 Massachusetts v. Environmental Protection Agency, 127 S.Ct. 1438 (2007).

3 Perry W. Payne and Sara Rosenbaum, Massachusetts et al. v Environmental Protection Agency: Implications for Public Health Policy and Practice, Public Health Reports 122 No. 6 (2007): 817–819, <https://doi.org/10.1177/003335490712200614>. Accessed April 2021.

4 Federal Register, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act (December 15, 2009), <https://www.federalregister.gov/documents/2009/12/15/E9-29537/endangerment-and-cause-or-contribute-findings-for-greenhouse-gases-under-section-202a-of-the-clean>. Accessed April 2021.

5 United States Environmental Protection Agency (USEPA), Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act, <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean/>. Accessed April 2021.

does not require control of greenhouse gases; rather, it requires only that sources above certain threshold levels monitor and report emissions.<sup>6</sup>

### ***Corporate Average Fuel Economy (CAFE) Standards***

In response to the *Massachusetts v. Environmental Protection Agency* ruling, the George W. Bush administration issued Executive Order 13432 in 2007, directing the USEPA, the US Department of Transportation (USDOT), and the US Department of Energy (USDOE) to establish regulations that reduce GHG emissions from motor vehicles, nonroad vehicles, and nonroad engines by 2008.<sup>7</sup> In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011; in 2010, the USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.<sup>8</sup>

In 2010, President Obama issued a memorandum directing the USEPA, USDOT, USDOE, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles.<sup>9</sup> The proposed standards projected to achieve 163 grams/mile of CO<sub>2</sub> in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022 – 2025 in a future rulemaking. On April 2, 2018, the USEPA signed the Mid-term Evaluation Final Determination, which finds that the model year 2022–2025 greenhouse gas standards are not appropriate and should be revised.<sup>10</sup> The Final Determination serves to initiate a notice to further consider appropriate standards for model year 2022–2025 light duty vehicles. On August 24, 2018, the USEPA and NHTSA published a proposal to freeze the model year 2020 standards

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6 Federal Register, Mandatory Reporting of Greenhouse Gases (October 30, 2009), <https://www.gpo.gov/fdsys/pkg/FR-2009-10-30/pdf/E9-23315.pdf>. Accessed April 2021.

7 US Government Publishing Office, Administration of George W. Bush, Executive Order 13432—Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles, and Nonroad Engines, 631 (May 14, 2007), <https://www.gpo.gov/fdsys/pkg/WCPD-2007-05-21/pdf/WCPD-2007-05-21-Pg631.pdf>. Accessed April 2021.

8 USEPA, Regulations for Greenhouse Gas Emissions from Commercial Trucks & Buses (December 27, 2017), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>. Accessed April 2021.

9 USEPA, Presidential Announcements and Letters of Support related to Greenhouse Gas Emissions (August 28, 2017), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/presidential-announcements-and-letters-support-related>. Accessed April 2021.

10 Federal Register, Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022 – 2025 Light-Duty Vehicles, April 13, 2018, <https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty>. Accessed April 2021.

through model year 2026 and to revoke California’s waiver under the Clean Air Act to establish more stringent standards.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2016, the USEPA and NHTSA finalized Phase 2 standards for medium and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. If implemented, the Phase 2 standards would be expected to lower CO<sub>2</sub> emissions by approximately 1.1 billion metric tons (MT), save vehicle owners fuels costs of about \$170 billion.<sup>11</sup> But as discussed above, the USEPA and NHTSA have proposed to roll back GHG and fuel economy for cars and light-duty trucks, which suggest a similar rollback of Phase 2 standards for medium and heavy-duty vehicles may be pursued.

### ***Energy Independence and Security Act***

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:<sup>12</sup>

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of renewable fuel in 2022, with at least 16 billion gallons from cellulosic biofuels and a cap of 15 billion gallons for corn-starch ethanol;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks; and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks, and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs.”<sup>13</sup>

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11 USEPA, EPA and NHTSA Adopt Standards to Reduce GHG and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond, August 2016.

12 USEPA, Summary of the Energy Independence and Security Act, <https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act>. Accessed April 2021.

13 A green job, as defined by the United States Department of Labor, is a job in business that produce goods or provide services that benefit the environment or conserve natural resources.

## State

### *Executive Orders*

#### **Executive Order S-3-05**

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger and issued in June 2005, proclaimed that California is vulnerable to the impacts of climate change.<sup>14</sup> It declared that increased temperatures could reduce the Sierra snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established the following total GHG emission targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

However, in adopting the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32 (Pavley), discussed below, the Legislature did not adopt the 2050 horizon-year goal from Executive Order No. S-3-05 and, in the 2006 legislative session, rejected legislation to enact the Executive Order's 2050 goal.

#### **Executive Order S-01-07**

Executive Order S-1-07, the Low Carbon Fuel Standard (issued on January 18, 2007), requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.<sup>15</sup> Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to the California Air Resources Board (CARB). The Low Carbon Fuel Standard has been identified by CARB as a discrete early action item in the adopted Climate Change Scoping Plan (discussed below). CARB expects the Low Carbon Fuel Standard to achieve the minimum 10 percent reduction goal; however, many of the early action items outlined in the Climate Change Scoping Plan work in tandem with one another. Other specific emission reduction measures included are the Million Solar Roofs Program<sup>16</sup> and Assembly Bill (AB) 1493 (Pavley I), Vehicle Emissions: Greenhouse Gases, which establishes motor vehicle GHG emissions standards.<sup>17</sup> To

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14 National Resources Conservation Service, Emerging Issues Committee Members, [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs143\\_008701.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_008701.pdf). Accessed April 2021.

15 Office of the Governor, Executive Order S-01-07 (January 18, 2007), <https://www.arb.ca.gov/fuels/lcfs/eos0107.pdf>. Accessed April 2021.

16 US Department of Energy, Laying the Foundation for Solar America: The Million Solar Roofs Initiative, <https://www.nrel.gov/docs/fy07osti/40483.pdf>. Accessed April 2021.

17 The standards enacted in Pavley I are the first GHG standards in the nation for passenger vehicles and took effect for model years starting in 2009 and going through 2016. Pavley I could potentially result in 27.7 million metric tons CO<sub>2</sub>e reduction in 2020. Pavley II will cover model years 2017 to 2025 and potentially result in an additional reduction of 4.1 million metric tons CO<sub>2</sub>e.

avoid the potential for double-counting emission reductions associated with AB 1493, the Climate Change Scoping Plan has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent. In accordance with the Climate Change Scoping Plan, this analysis incorporates the modified reduction potential for the Low Carbon Fuel Standard. CARB released a draft version of the Low Carbon Fuel Standard in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the Low Carbon Fuel Standard became effective on the same day.

### **Executive Order B-30-15**

Executive Order B-30-15, signed by Governor Edmund Gerald “Jerry” Brown and issued in April 29, 2015, established a new Statewide policy goal to reduce GHG emissions to 40 percent below their 1990 levels by 2030. Reducing GHG emissions by 40 percent below 1990 levels in 2030, and by 80 percent below 1990 levels by 2050 (consistent with Executive Order S-3-05), aligns with scientifically established levels needed to limit global warming to less than 2 degrees Celsius.<sup>18</sup>

### ***Assembly Bill 32 and Related Legislation***

AB 32, the Global Warming Solutions Act of 2006, requires a sharp reduction of GHG emissions to 1990 levels by 2020. To achieve these goals, which are consistent with the California Climate Action Team, which works to coordinate statewide efforts to implement global warming emission reduction programs and the state's Climate Adaptation Strategy after the passing of AB 32, AB 32 mandates that CARB establish a quantified emissions cap and institute a schedule to meet the cap; implement regulations to reduce Statewide GHG emissions from stationary sources consistent with the California Climate Action Team strategies; and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. To reach the reduction targets, AB 32 requires CARB to adopt—in an open, public process—rules and regulations that achieve the maximum technologically feasible and cost-effective GHG reductions.

### ***Climate Change Scoping Plan***

CARB approved a Climate Change Scoping Plan (Scoping Plan) on December 11, 2008, as required by AB 32. The Scoping Plan proposed a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health.”<sup>19</sup> The Scoping Plan had a range of

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18 Office of the Governor, Governor Brown Established Most Ambitious Greenhouse Gas Reduction Target in North America (April 29, 2015), <https://www.ca.gov/archive/gov39/2015/04/29/news18938/index.html>. Accessed April 2021.

19 CARB, Climate Change Scoping Plan: A Framework for Change, [https://www.arb.ca.gov/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf). Accessed April 2021.

GHG reduction actions, including direct regulations; alternative compliance mechanisms; monetary and nonmonetary incentives; voluntary actions; market-based mechanisms, such as a cap-and-trade system; and an AB 32 implementation regulation to fund the program.

The Scoping Plan called for a “coordinated set of strategies” to address all major categories of GHG emissions.<sup>20</sup> Transportation emissions were to be addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard,<sup>21</sup> and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and, sometimes, required to implement energy efficiency practices. Utility energy supplies will change to include more renewable energy sources through implementation of the Renewables Portfolio Standard. This will be complemented with emphasis on local generation, including rooftop photovoltaics and solar hot water installations. Additionally, the Scoping Plan emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicated that substantial savings of electricity and natural gas would be accomplished through improving energy efficiency.

CARB updated the Scoping Plan in May 2014 (2014 Scoping Plan). The 2014 Scoping Plan<sup>22</sup> adjusted the 1990 GHG emissions levels to 431 million metric tons of carbon dioxide equivalents (MMTCO<sub>2</sub>e); the updated 2020 GHG emissions forecast is 509 MMTCO<sub>2</sub>e, which credited for certain GHG emission reduction measures already in place (e.g., the RPS). The 2014 Scoping Plan also recommended a 40 percent reduction in GHG emissions from 1990 levels by 2030, and a 60 percent reduction in GHG emissions from 1990 levels by 2040.

The 2017 Scoping Plan,<sup>23</sup> approved on December 14, 2017, builds on previous programs and takes aim at the 2030 target established by the SB 32 (Pavley), which is further discussed below. The 2017 Scoping Plan outlines options to meet California’s aggressive goals to reduce GHGs by 40 percent below 1990 levels by 2030. In addition, the plan incorporates the State’s updated RPS requiring utilities to procure 50 percent of their electricity from renewable energy sources by 2030. It also raises the State’s Low Carbon Fuel Standard<sup>24</sup> and aims to reduce emissions of methane and hydrofluorocarbons by 40 percent from 2013 levels by 2030 and emissions of black carbon by 50 percent from 2013 levels.

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20 CARB, Climate Change Scoping Plan, p. ES-7.

21 Office of the Governor, Executive Order S-01-07, (January 18, 2007), <https://climateactionnetwork.ca/wp-content/uploads/2011/06/eos0107.pdf>. Accessed April 2021.

22 CARB, First Update to the Climate Change Scoping Plan: Building on the Framework (May 2014).

23 CARB, California’s 2017 Climate Change Scoping Plan, [https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf). Accessed April 2021.

24 Office of the Governor, Executive Order S-01-07, (January 18, 2007), <https://climateactionnetwork.ca/wp-content/uploads/2011/06/eos0107.pdf>. Accessed April 2021.



The 2017 Scoping Plan<sup>25</sup> advises that absent conformity with a qualified GHG reduction plan, projects should incorporate all feasible GHG reduction measures and that achieving “no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development.”

### ***Advanced Clean Cars Regulations***

In 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for vehicle model years 2017–2025. The program combines the control of smog, soot, and GHGs with requirements for greater number of zero-emission vehicles. By 2025, when the rules will be fully implemented, automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.<sup>26</sup>

### ***AB 197: Statewide GHG Emissions Limit***

On September 8, 2016, Governor Brown signed AB 197, which requires CARB to approve a Statewide GHG emissions limit equivalent to the Statewide GHG emission level in 1990 to be achieved by 2020.<sup>27</sup> AB 197 requires the CARB to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions. The bill became effective on January 1, 2017.

### ***Senate Bills***

#### **Senate Bill 375**

SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations.<sup>28</sup> The act requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) that prescribes land use allocation in that MPO’s regional transportation plan (RTP). CARB, in consultation with MPOs, provided regional reduction targets for GHGs for the years 2020 and 2035.

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25 California Air Resources Board, 2017. California’s 2017 Climate Change Scoping Plan. pp. 100-101. Available: [https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf). Accessed April 2021.

26 CARB, The Advanced Clean Cars Program (January 18, 2018), <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program>. Accessed April 2021.

27 California Legislative Information, Assembly Bill No. 197 (September 8, 2016), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160AB197](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB197). Accessed April 2021.

28 California Legislative Information, Senate Bill No. 375 (September 30, 2008), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=200720080SB375](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=200720080SB375). Accessed April 2021.

### Senate Bill X1-2: 2020 Renewable Portfolio Standard

On April 12, 2011, California governor Jerry Brown signed SB X1-2.<sup>29</sup> This bill supersedes the 33 percent by RPS created by Executive Order S-14-08, previously signed by Governor Schwarzenegger. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. A number of significant changes are made in SB X1-2. It extends application of the RPS to all electric retailers in the State, including municipal and public utilities, and community choice aggregators.

SB X1-2 creates a three-stage compliance period for electricity providers to meet renewable energy goals: 20 percent of retail sales must be renewable energy products by 2013, 25 percent of retail sales must be renewable energy products by 2016, and 33 percent of retail sales must be renewable energy products by 2020. The 33 percent level must be maintained in the years that follow. This three-stage compliance period requires the RPS to be met increasingly with renewable energy that is supplied to the California grid and is located within or directly proximate to California. SB X1-2 mandates that renewables from this category make up:

- At least 50 percent for the 2011–2013 compliance period;
- At least 65 percent for the 2014–2016 compliance period; and
- At least 75 percent for 2016 and beyond.

SB X1-2 sets rules for the use of Renewable Energy Credits (RECs) as follows:

- Establishes a cap of no more than 25 percent unbundled RECs going toward the RPS between 2011 and 2013, 15 percent from 2014 to 2016, and 10 percent thereafter;
- Does not allow for the grandfathering of tradable REC contracts executed before 2010, unless the contract was (or is) approved by the California Public Utilities Commission (CPUC);
- Allows banking of RECs for 3 years only; and
- Allows energy service providers, community choice aggregators, and investor-owned utilities with 60,000 or fewer customers to use 100 percent RECs to meet the RPS.

SB X1-2 also eliminates the Market Price Referent, which was a benchmark to assess the above-market costs of RPS contracts based on the long-term ownership, operating, and fixed-price fuel costs for a new 500-megawatt (mW) natural-gas-fired, combined-cycle gas turbine.

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<sup>29</sup> California Energy Commission, Renewable Portfolio, <http://www.energy.ca.gov/portfolio>. Accessed April 2021.

### **Senate Bill 350: Clean Energy and Pollution Reduction Act**

SB 350, the Clean Energy and Pollution Reduction Act of 2015, was signed on October 7 of that year.<sup>30</sup> SB 350 implements some of the goals of Executive Order B-30-15 described above. The objectives of SB 350 are: (1) to increase the procurement of our electricity from renewable sources from 33 percent to 50 percent; and (2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.<sup>31</sup>

### **Senate Bill 32 and Assembly Bill 197**

Enacted in 2016, SB 32 codifies the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that Statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. The reduction of GHG emissions is a priority for development projects throughout the State and is achieved through a combination of policies, planning, direct regulations, market approaches, incentives, and voluntary efforts. Generally speaking, the focus of GHG emission reductions is on energy production and motor vehicles.

SB 32 was coupled with a companion bill: AB 197. Designed to improve the transparency of CARB's regulatory and policy-oriented processes, AB 197 created the Joint Legislative Committee on Climate Change Policies, a committee with the responsibility to ascertain facts and make recommendations to the Legislature concerning Statewide programs, policies and investments related to climate change. AB 197 also requires CARB to make certain GHG emissions inventory data publicly available on its website; consider the social costs of GHG emissions when adopting rules and regulations designed to achieve GHG emission reductions; and include specified information in all Scoping Plan updates for the emission reduction measures contained therein.

### ***Center for Biological Diversity v. California Department of Fish and Wildlife***

The California Supreme Court's decision published on November 30, 2015, in *Center for Biological Diversity v. California Department of Fish and Wildlife* (Case No. 217763; the Newhall Ranch case) reviewed the methodology used to analyze GHG emissions in an EIR prepared for a project that proposed 20,885 dwelling units with 58,000 residents on 12,000 acres of undeveloped land in a rural area of the City of Santa Clara.<sup>32</sup> That EIR used the "business as usual" (BAU) methodology to determine whether the project would impede the State of California's compliance with statutory emissions reduction mandate

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30 California Legislative Information, Senate Bill No. 350 (October 7, 2015), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB350](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350). Accessed April 2021.

31 Senate Bill 350 (2015–2016 Reg, Session) Stats 2015, ch. 547.

32 California Department of Fish and Wildlife, Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan, <https://www.wildlife.ca.gov/regions/5/newhall>. Accessed April 2021.

established by the AB 32 Scoping Plan. The Court did not invalidate the BAU approach entirely, but did hold that:

*The Scoping Plan nowhere related that statewide level of reduction effort to the percentage of reduction that would or should be required from individual projects and nothing Department of Fish and Wildlife or Newhall have cited in the administrative record indicates the required percentage reduction from business as usual is the same for an individual project as for the entire state population and economy.*<sup>33</sup>

The California Supreme Court suggested regulatory consistency as a pathway to compliance, stating that a Lead Agency might assess consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. The Court recognized that to the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan, and adopted by CARB or other State agencies, a Lead Agency could appropriately rely on their use as showing compliance with performance-based standards adopted to fulfill a Statewide plan for the reduction or mitigation of greenhouse gas emissions. This approach is consistent with CEQA Guidelines Section 15064, which provides that a determination that an impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including plans or regulations for the reduction of greenhouse gas emissions. Importantly, the Supreme Court also suggested "a lead agency may rely on existing numerical thresholds of significance for greenhouse gas emissions (*brightline threshold approach*)."<sup>34</sup>

## **California Energy Commission**

### **Building Energy Efficiency Standards**

Title 24, Part 6 of the California Code of Regulations (CCR), regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The CEC adopted the 2019 Building Energy Efficiency Standards, and became effective January 1, 2020. Two key areas specific to nonresidential development in the 2019 standards focus on nonresidential ventilation requirements and

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33 Center for Biological Diversity et al. v. California Department of Fish and Wildlife (2015) (62 Cal.4th 204, 195 Cal.Rptr.3d 247, 361 P.3d 342).

34 The South Coast Air Quality Management District (SCAQMD), Interim CEQA Greenhouse Gas (GHG) Significance Thresholds, draft guidance document (October 2008), Attachment E, [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf). Accessed April 2021.

nonresidential lighting requirements.<sup>35</sup> Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards.

The CPUC, CEC, and CARB also have a shared, established goal of achieving Zero Net Energy (ZNE) for new construction in California. The key policy timelines include (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.

The ZNE goal generally means that new buildings must use a combination of improved efficiency and renewable energy generation to meet 100 percent of their annual energy need, as specifically defined by the CEC:

*A ZNE Code Building is one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building, at the level of a single “project” seeking development entitlements and building code permits, measured using the [CEC]’s Time Dependent Valuation (TDV) metric. A ZNE Code Building meets an Energy Use Intensity value designated in the Building Energy Efficiency Standards by building type and climate zone that reflect best practices for highly efficient buildings.*<sup>36</sup>

In addition to the CEC’s efforts, in 2008, the California Building Standards Commission adopted the nation’s first green building standards. The California Green Building Standards Code (Part 11 of Title 24), commonly referred to as CALGreen, establish voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. CALGreen is periodically amended; the most recent 2019 standards became effective on January 1, 2020.

## Appliance Standards

The CEC periodically amends and enforces Appliance Efficiency Regulations contained in Title 20 of the CCR. The regulations establish water and energy efficiency standards for both federally regulated appliances and non–federally regulated appliances. The most current Appliance Efficiency Regulations, dated July 2015, cover 23 categories of appliances (e.g., refrigerators; plumbing fixtures; dishwashers; clothes washer and dryers; televisions) and apply to appliances offered for sale in California.

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35 California Energy Commission (CEC), 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, <https://www.energy.ca.gov/title24/2019standards/>. Accessed April 2021.

36 CEC, 2015 Integrated Energy Policy Report (2015), p. 41.

## ***Regional***

### **South Coast Air Quality Management District**

The South Coast Air Quality Management District (SCAQMD) adopted a “Policy on Global Warming and Stratospheric Ozone Depletion” on April 6, 1990.<sup>37</sup> The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan (AQMP). In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons, methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons by the year 2000;
- Develop recycling regulations for hydrochlorofluorocarbons (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. Within its October 2008 document, SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MT of GHG per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where SCAQMD is the Lead Agency.<sup>38</sup>

### **Southern California Association of Governments**

The City of Long Beach (City) is a member agency of the Southern California Association of Governments (SCAG). SCAG is the MPO for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally-designated MPO for the Southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, and air quality. Pursuant to California Health and Safety Code Section 40460(b),<sup>39</sup> SCAG has the responsibility for preparing and approving the portions of

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37 SCAQMD, SCAQMD’s Historical Activity on Climate Change, <http://www.aqmd.gov/nav/about/initiatives/climate-change>. Accessed April 2021.

38 SCAQMD, Greenhouse Gases: CEQA Significance Thresholds, <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>. Accessed April 2021.

39 California Health and Safety Code, Division 26. Air Resources, PART 3. Air Pollution Control Districts, Chapter 5.5. South Coast Air Quality Management District, ARTICLE 5. Plan, Section 40460(b).

the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. SCAG is also responsible under the CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

With regard to GHG emissions, SCAG has prepared and adopted the 2020–2045 RTP/SCS,<sup>40</sup> which includes a Sustainable Communities Strategy that addresses regional development and growth forecasts. The SCAG 2020–2045 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals, with a specific goal of achieving an 8 percent reduction in passenger vehicle GHG emissions on a per capita basis by 2020, 19 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level.

## ***Local***

### **Green City Annual Progress Report**

In 2005, the City of San Francisco hosted the United Nations World Environment Day and selected "Green Cities" as the unifying theme for the event. From these discussions, the Urban Environmental Accords were developed (the Accords). The Accords are a set of 21 actions intended to address the growing interest in global and local environmental challenges and opportunities for cities to address. The goal of the Accords is to offer a series of implementable actions that can be adopted at the city level to achieve urban sustainability, promote healthy economies, advance social equity and to protect the world's ecosystem. The City of Signal Hill became a signatory city to the Accords on February 3, 2009 when the City Council approved an Action Plan for the Sustainable City Committee (SCC). On June 6, 2017 the SCC released the 2016 Green City Annual Progress Report which provides a status report of the City's goals and highlights environmental achievements for each calendar year.<sup>41</sup> The 2016 Green City Annual Progress Report summarizes that 9 of the 21 action items from the Accords have been achieved by the City. The completion of 9 goals qualifies the City to be a certified One-Leaf Green City by the Urban Environmental Accords Standards.

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40 Southern California Association of Governments (SCAG), Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft, Chapter 1, <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>. Accessed April 2021.

41 City of Signal Hill, 2016 Green City Annual Progress Report, <https://www.cityofsignalhill.org/427/Green-City-Report>. Accessed July 2021.

### **Municipal Green Building Policy**

On May 15, 2012 the City adopted a Municipal Green Building Policy to provide guidance and leadership in the development of sustainable green building practices.<sup>42</sup> The Municipal Green Building Policy incorporates United States Green Building Council (USGBC) green building standards for all new municipal buildings greater than 2,000 square feet. Moreover, the Municipal Green Building Policy encourages the utilization of USGBC LEED standards for new private developments, and requires all projects to comply with CALGreen.

### **Electric Vehicle Charging Station Policy**

On December 11, 2018 the City adopted a, Electric Vehicle Charging Station Policy to provide guidance and leadership to promote installation of electric vehicle (EV) chargers and charging stations citywide where practicable.<sup>43</sup> The Electric Vehicle Charging Station Policy is intended to provide leadership and guidance through a commitment by the City to endeavor to exceed minimum applicable building standards regarding EV chargers by installing EV chargers in all municipal development where practicable and by encouraging, but not requiring installation of EV chargers in private sector development.

## **4. ENVIRONMENTAL IMPACTS**

### ***Thresholds of Significance***

To assist in determining whether the proposed Project would have a significant effect on the environment, the proposed Project may be deemed to have a significant impact related to greenhouse gases if it would:

- Threshold GHG-1:      Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**
- Threshold GHG-2:      Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

Pursuant to CEQA Guidelines Section 15064.4, the methods suitable for analysis of GHG emissions are:

1. Use a model or methodology to quantify greenhouse gas emissions resulting from a project. The Lead Agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The Lead Agency should explain the limitation of the particular model or methodology selected for use.
2. Rely on a qualitative analysis or performance-based standards.

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<sup>42</sup> City of Signal Hill Policy and Procedure, Municipal Green Building Policy, adopted May 15, 2012.

<sup>43</sup> City of Signal Hill Policy and Procedure, Electric Vehicle Charging Station Policy, adopted December 18, 2018.



The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions. Nor have SCAQMD, OPR, CARB, CAPCOA, or any other state or regional agency adopted a numerical significance threshold for assessing GHG emissions that is applicable to the Project. Assessing the significance of a project's contribution to cumulative global climate change involves: (1) developing pertinent inventories of GHG emissions, and (2) considering project consistency with applicable emission reduction strategies and goals. This evaluation of consistency with such plans is the sole basis for determining the significance of the Project's GHG-related impacts on the environment.

It is important to note the adoption of the 2021-2029 Housing Element would not approve any development projects or propose any specific development. Without any physical disturbance of soil or physical structures, no greenhouse gas emissions would be anticipated. However, the following analysis assess for the impacts of development taking place over the identified Housing Sites to help determine the feasibility for development at each identified sites in accordance with Government Code Section 65583.2(c).

### **Consistency Analysis**

OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. The City does not have a programmatic mitigation plan to tier from, such as a Greenhouse Gas Emissions Reduction Plan, as recommended in the relevant amendments to the CEQA Guidelines. CARB's Climate Change Scoping Plan includes a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms, and an AB 32 implementation regulation. Thus, if the proposed Project is designed in accordance with these policies and regulations, the proposed Project would result in a less-than-significant impact, because it would be consistent with the overarching State regulations on GHG reduction (AB 32).

A consistency analysis is provided below and describes the Project's compliance with or exceedance of performance-based standards included in the regulations outlined in the applicable portions of CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the City's General Plan.

## ***Methodology***

### **Methodologies for Evaluating Significance**

The analysis of the Housing Site developments' GHG emissions consists of a quantitative analysis of the GHG emissions generated by the construction and operation activities and a qualitative analysis of the proposed Project's consistency with adopted GHG-related legislation, plans, and policies. This approach is in accordance with CEQA Guidelines Section 15064.4(a), which affirms the discretion of a lead agency

to determine, in the context of a particular project, whether to use quantitative and/or qualitative methodologies to determine the significance of a project's impacts.

### Emissions Inventory Modeling

The California Emissions Estimator Model Version 2020.4.0, known as CalEEMod, is the CARB-approved computer program model recommended by SCAQMD for use in the quantification of air quality emissions, including GHG emissions. CalEEMod was developed under the auspices of SCAQMD, with input from other California air districts. CalEEMod utilizes widely accepted models for emissions estimates combined with appropriate data that can be used if site-specific information is not available. For example, CalEEMod incorporates USEPA-developed emission factors; CARB's on-road and off-road equipment emission models, such as EMFAC and OFFROAD;<sup>44</sup> and studies commissioned by other California agencies, such as the CEC and CalRecycle. Proposed Project development would generate GHG emissions from a number of individual sources during both construction and postconstruction (operational) use of the buildings and related activities (e.g., landscape maintenance). These individual sources collectively are hereafter referred to as the proposed Project's GHG emissions inventory.

CalEEMod version 2020.4.0 was used to quantify the Housing Site developments' GHG emissions. CalEEMod provides a platform to calculate both construction emissions and operational emissions from a land use development project. The following GHG emission sources covered by CalEEMod model include:

- One-time construction emissions associated with demolition, grading, utility installation, building construction, application of architectural coatings (e.g., paint), and paving from emission sources that include both off-road construction equipment and on-road mobile equipment associated with workers, hauling, and the delivery of construction materials to the Housing Sites. Construction emissions associated with dust control and disposal of waste at landfills were also included.
- Operational emissions associated with the occupancy of development, such as on-road mobile vehicle traffic generated by the land uses; off-road emissions from landscaping equipment; energy (i.e., electricity and natural gas) and water usage in the buildings.

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44 EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles; haul trucks). OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment). CalEEMod version 2020.4.0 utilizes CARB's 2017 version of EMFAC.

## Environmental Impacts

**Threshold GHG-1:** Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

### Construction

Construction activity impacts are short in duration, so they contribute a relatively small portion of the total lifetime GHG emissions of a development. The combustion of fossil fuels in construction equipment results in GHG emissions of CO<sub>2</sub> and smaller amounts of CH<sub>4</sub> and N<sub>2</sub>O. Emissions of GHG would also result from the combustion of fossil fuels from vendor trucks delivering materials and construction worker vehicles commuting to and from the Housing Sites. Typically, light-duty and medium-duty automobiles and trucks would be used for worker trips and heavy-duty trucks would be used for vendor trips. The vast majority of motor vehicles used for worker trips rely on gasoline as an energy source while motor vehicles used for vendor trips would primarily rely on diesel as an energy source. In addition, GHG emissions-reduction measures for construction equipment are relatively limited. Therefore, in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds*, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies.

Construction assumptions used in the analysis of GHG emissions conservatively assume that the Housing Site developments would be constructed with the most intensive activities occurring on a daily basis. The order of development for the Housing Sites is currently undetermined. As such, it was conservatively assumed any of the Housing Sites could be developed first. The total emissions from construction of the individual Housing Site are shown in **Table 4.5-3: Construction Annual Greenhouse Gas Emissions**.

**Table 4.5-3**  
**Construction Annual Greenhouse Gas Emissions**  
(MTCO<sub>2</sub>e per year)

Year <sup>a</sup>	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
2022	608	341	598	420
2023	366	N/A	654	247
<b>Overall Total</b>	<b>974</b>	<b>341</b>	<b>1,252</b>	<b>667</b>
<b>30-Year Annual Amortized Rate</b>	<b>33</b>	<b>11</b>	<b>42</b>	<b>22</b>

Source: Refer to **Appendix E: Section 2.1 Overall Construction**

Note: Totals in table may not appear to add exactly due to rounding in the computer model calculations.

MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent

As recommended by SCAQMD, the total GHG construction emissions were amortized over the 30-year lifetime of the Housing Sites (i.e., total construction GHG emissions were divided by 30 to determine annual construction emissions estimate that can be added to the Housing Site's operational emissions) in order to determine the annual GHG emissions inventory.<sup>45</sup>

## Operation

Emissions from mobile and area sources and indirect emissions from energy and water use, wastewater, as well as waste management would occur every year after buildout. This section addresses operational GHG emissions.

## Area Sources

The area source GHG emissions included in this analysis result primarily from natural gas fireplaces with additional emissions from landscaping-related fuel combustion sources, such as lawn mowers. GHG emissions due to natural gas combustion in buildings other than from fireplaces are excluded from area sources since they are included in the emissions associated with building energy use.

The GHG emissions for the Housing Sites were calculated using CalEEMod. All fireplaces were assumed to be natural gas burning, based on SCAQMD Rule 445. CalEEMod defaults were used for landscape maintenance emissions. Area source emissions are shown in **Table 4.5-4: Area Source Greenhouse Gas Emissions**. As shown in **Table 4.5-4**, combined Housing Site emissions would result in approximately 160 MTCO<sub>2</sub>e per year from area sources.

**Table 4.5-4**  
**Area Source Greenhouse Gas Emissions**  
**(MTCO<sub>2</sub>e per year)**

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Hearth	61	18	55	15
Landscaping	5	2	4	1
<b>Total</b>	<b>65</b>	<b>20</b>	<b>59</b>	<b>16</b>
<b>Project Total</b>	<b>160</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

45 SCAQMD Governing Board Agenda Item 31, December 8, 2008.

### Energy Sources

GHGs are emitted as a result of activities in buildings when electricity and natural gas are used as energy sources. Combustion of any type of fuel emits CO<sub>2</sub> and other GHGs directly into the atmosphere; when this occurs in a building, it is a direct emission source associated with that building. GHGs are also emitted during the generation of electricity from fossil fuels. When electricity is used in a building, the electricity generation typically takes place off-site at the power plant; electricity use in a building generally causes emission in an indirect manner.

Estimated emissions from the combustion of natural gas and other fuels from the implementation of the Housing Sites are calculated using the CalEEMod emissions inventory model, which multiplies an estimate of the energy usage by applicable emissions factors chosen by the utility company. GHG emissions from electricity use are directly dependent on the electricity utility provider. In this case, GHG intensity factors for Southern California Edison were selected in CalEEMod. Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building, such as plug-in appliances. CalEEMod calculates energy use from systems covered by Title 24 (e.g., heating, ventilation, and air conditioning [HVAC] system, water heating system, and lighting system); energy use from lighting; and energy use from office equipment, appliances, plug-ins, and other sources not covered by Title 24 or lighting.

Energy source emissions are shown in **Table 4.5-5: Energy Source Greenhouse Gas Emissions**. As shown in **Table 4.5-5**, the Housing Sites' operation would generate 1,162 MTCO<sub>2</sub>e per year from energy source emissions.

**Table 4.5-5**  
**Energy Source Greenhouse Gas Emissions**  
**(MTCO<sub>2</sub>e per year)**

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Electricity	197	60	238	153
Natural Gas	207	63	190	54
<b>Total</b>	<b>404</b>	<b>123</b>	<b>428</b>	<b>207</b>
<b>Project Total</b>	<b>1,162</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

### Mobile Sources Emissions

Vehicle trips generated by growth within the vicinity of the Housing Sites would result in operational emissions through the combustion of fossil fuels. CO<sub>2</sub> emissions were determined based on the trip rates from the Traffic Impact Analysis (refer to **Appendix H** of this Draft EIR). As shown in **Table 4.5-6: Mobile Source Greenhouse Gas Emissions**, the Housing Sites' mobile source emissions would result in 5,843 MTCO<sub>2</sub>e per year.

**Table 4.5-6**  
**Mobile Source Greenhouse Gas Emissions**  
(MTCO<sub>2</sub>e per year)

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Mobile (trips)	2,375	739	2,149	580
<b>Project Total</b>	<b>5,843</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

### Solid Waste Emissions

Solid waste generation and associated emissions are calculated using default data found in CalEEMod for the proposed land uses. Disposal of organic waste in landfills can lead to the generation of CH<sub>4</sub>, a potent GHG. By generating solid waste, the proposed Project would contribute to the emission of fugitive CH<sub>4</sub> from landfills, as well as CO<sub>2</sub> and N<sub>2</sub>O from the operation of trash collection vehicles. As shown in **Table 4.5-7: Solid Waste Source Greenhouse Gas Emissions**, combined Housing Sites' GHG emissions resulting from solid waste would forecast to be 204 MTCO<sub>2</sub>e per year.

**Table 4.5-7**  
**Solid Waste Source Greenhouse Gas Emissions**  
(MTCO<sub>2</sub>e per year)

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Solid Waste	68	21	75	40
<b>Project Total</b>	<b>204</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

### Water Consumption and Wastewater Emissions

California's water conveyance system is energy intensive, with electricity used to pump and treat water. Development of the Housing Sites would result in indirect GHG emissions due to water consumption and wastewater generation. Water consumption and wastewater generation, and their associated emissions, are calculated based on the square footage of the proposed uses, using CalEEMod data. As shown in **Table 4.5-8: Water Source Greenhouse Gas Emissions**, the Housing Sites' water and wastewater GHG emissions would forecast to be 216 MTCO<sub>2</sub>e per year.

**Table 4.5-8**  
**Water Source Greenhouse Gas Emissions**  
**(MTCO<sub>2</sub>e per year)**

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Water/Wastewater	79	24	80	33
<b>Project Total</b>	<b>216</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

### Total Emissions

As shown in **Table 4.5-9: Operational Greenhouse Gas Emissions**, the Housing Site developments are forecasted to generate a total of 7,694 MTCO<sub>2</sub>e per year. The Housing Sites would incorporate energy and water efficiency design features to enhance efficiency in all aspects of the buildings' life cycle based on the latest CALGreen and Title 24 Building Energy Efficiency standards for new construction.

In the absence of any adopted, numeric threshold, the City evaluates the significance of the Housing Sites potential GHG emissions consistent with CEQA Guidelines section 15064.4(b)(2). As such, a significant impact would occur if the proposed Project conflicts with the applicable policies and/or regulations outlined in CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, the City's 2016 Green City Annual Progress Report, or the City's General Plan. As shown under **Threshold GHG-2** below, development of the Housing Sites would not conflict with any of the applicable policies and/or regulations outlined in these plans. As such, impacts related to direct and indirect emissions of greenhouse gas emissions would be less than significant.

**Table 4.5-9**  
**Operational Greenhouse Gas Emissions**  
**(MTCO<sub>2</sub>e per year)**

Source	Orange Bluff	Walnut Bluff	Town Center Northwest	Heritage Square
Construction (amortized)	33	11	42	22
Area	66	20	59	16
Energy	404	123	428	207
Mobile	2,375	739	2,149	580
Waste	68	21	75	40
Water	79	24	80	33
<b>Total</b>	<b>3,025</b>	<b>938</b>	<b>2,833</b>	<b>898</b>
<b>Project Total</b>	<b>7,694</b>			

Source: Refer to **Appendix E** for Greenhouse Gas Emission Output.

**Threshold GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

Compliance with applicable GHG emission reduction plans would result in a less than significant project-level and cumulative impact. Since adoption of the 2021-2029 Housing Element would not approve or propose any developments, no conflict with existing plans, policies, or regulations with reducing the emissions of greenhouse gases would occur. The following section describes the extent the future Housing Site developments would comply with or exceeds the performance-based standards included in the regulations and policies outlined in CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, or the City's General Plan. Key regulations incorporated into this analysis include California Code of Regulations, Title 20 and Title 24.

**Climate Change Scoping Plan**

**Table 4.5-10: Climate Change Scoping Plan Project Consistency Analysis** contains a list of GHG-reducing strategies set forth in the Climate Change Scoping Plan that are applicable to the proposed Project. The analysis presented in **Table 4.5-10** describes the proposed Project's compliance and consistency with these strategies as outlined in the State's Climate Change Scoping Plan to reduce GHG emissions. As shown in **Table 4.5-10**, development of the Housing Sites would not conflict with the policies included in the Climate Change Scoping Plan.



**Table 4.5-10**  
**Climate Change Scoping Plan Project Consistency Analysis**

Regulation, Actions, and Strategies	Responsible Party(ies)	Proposed Project Consistency Analysis
<b>California Code of Regulations (CCR), Title 20:</b> The 2016 Appliance Efficiency Regulations, adopted by the California Energy Commission (CEC), include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California.	State and CEC	<b>No Conflict.</b> The Housing Sites would develop new residential and commercial uses that would be outfitted with appliances and lighting that comply with CEC's standards. These standards are included in the default parameters provided in CalEEMod for estimating the Project's GHG emissions.
<b>CCR, Title 24, Building Standards Code:</b> The 2019 Building Energy Efficiency Standards contained in Title 24, Part 6 (also known as the California Energy Code), requires the design of building shells and building components to conserve energy.	State and CEC	<b>No Conflict.</b> Consistent with regulatory requirements, the Housing Site developments would comply with applicable provisions of the California Green Building Standards Code.
The California Green Building Standards Code (Part 11, Title 24) established mandatory and voluntary standards on planning and design for sustainable site development, energy efficiency (extensive update of the California Energy Code), water conservation, material conservation, and internal air contaminants.		
<b>Assembly Bill 1109 (AB 1109):</b> The Lighting Efficiency and Toxic Reduction Act establishes standards structured to reduce average statewide electrical energy consumption by not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018. <sup>b</sup>	State/ Manufacturers	<b>No Conflict.</b> The Housing Site developments would not conflict with the requirements under AB 1109 because it would comply with local and state green building programs and incorporates energy efficient lighting and other required measures that would reduce electricity consumption.
<b>By 2019, develop pricing policies to support low- GHG transportation (e.g. low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts).</b>	CalSTA, Caltrans, CTC, OPR/SGC, CARB	<b>No Conflict.</b> The proposed Project would not conflict with this policy as this policy would not be implemented by the adoption of the 2021-2029 Housing Element or the development of the Housing Sites.
<b>CCR, Title 24, Building Standards Code:</b> The California Green Building Standards Code (Part 11, Title 24) includes water efficiency requirements for new residential and non-residential uses, in which buildings shall demonstrate a 20-percent overall water use reduction.	State	<b>No Conflict.</b> Consistent with regulatory requirements, the Housing Site developments would comply with applicable provisions of the California Green Building Standards Code.
<b>CARB In-Use Off-Road Regulation:</b> CARB's in-use off-road diesel vehicle regulation ("Off-Road Diesel Fleet Regulation")	CARB	<b>No Conflict.</b> Construction contractors that would comply with this regulation would be used by all the Housing Site developments.

Regulation, Actions, and Strategies	Responsible Party(ies)	Proposed Project Consistency Analysis
requires the owners of off-road diesel equipment fleets to meet fleet average emissions standards pursuant to an established compliance schedule.		
<b>CARB In-Use On-Road Regulation:</b> CARB's in-use on- road heavy-duty vehicle regulation ("Truck and Bus Regulation") applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. <sup>a</sup>	CARB	<b>No Conflict.</b> Construction contractors that would comply with this regulation would be used by all Housing Site developments.
<b>Implement the Short-Lived Climate Pollutant Strategy by 2030:</b> 40-percent reduction in methane and hydrofluorocarbon emissions below 2013 levels. 50-percent reduction in black carbon emissions below 2013 levels.	CARB, CalRecycle, CDFA, SWRCB,  Local air districts	<b>No Conflict.</b> Senate Bill 605 (SB 605) was adopted in 2014 which directs CARB to develop a comprehensive Short-Lived Climate Pollutant (SLCP) strategy. Senate Bill 1383 was later adopted in 2016 to require CARB to set statewide 2030 emission reduction targets of 40 percent for methane and hydrofluorocarbons and 50 percent black carbon emissions below 2013 levels.  The Housing Site developments would comply with the CARB SLCP Reduction Strategy which limits the use of hydrofluorocarbons for refrigeration uses.
<b>By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.</b>	CARB, CalRecycle, CDFA, SWRCB,  Local air districts	<b>No Conflict.</b> Under SB 1383, the California Department of Resources Recycling and Recovery (CalRecycle) is responsible for achieving a 50 percent reduction in the level of statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. In October 2020, CalRecycle released the proposed regulation text for the Short-lived Climate Pollutants (SLCP): Organic Waste Reductions program." <sup>c</sup>  The Housing Site developments would not conflict with AB 341 which requires not less than 75 percent of solid waste generated be source reduced through recycling, composting or diversion. Reduction in solid waste generated by the proposed Project would reduce overall GHG emissions. Compliance with AB 341 would also help achieve the goals of SB 1383.

<sup>a</sup> CARB, *Truck and Bus Regulation—On-Road Heavy Duty Diesel Vehicles (In-Use) Regulation*.

<sup>b</sup> CARB, *Reducing Short-Lived Climate Pollutants in California*.

<sup>c</sup> CalRecycle, *Short-Lived Climate Pollutants (SLCP): Organic Waste Reductions Proposed Methane Emissions Reductions, Proposed Regulation Text, October 2020*.

Source: Meridian Consultants, 2021.

## SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

The SCAG RTP/SCS<sup>46</sup> is the primary planning document for regional transportation infrastructure in the greater Los Angeles area. With a horizon year of 2045, this long-range plan, required by the federal government, is updated by SCAG every four years as demographic, economic, and policy circumstances change.

The 2020-2045 RTP/SCS identifies strategies and investments to support expanded housing choices for all income levels in areas with a range of transportation choices. Conclusions within the document stated that a comprehensive approach is needed in order to identify housing opportunities within Priority Growth Areas (PGAs) such as job centers, Transit Priority Areas (TPAs) found within half a mile of a major transit station, and High Quality Transit Areas (HQTAs) which include generally walkable transit oriented areas within one half-mile or a 15 minute walk of a well serviced transit stop. Additionally, under AB 101 (2019) legislation, SCAG is eligible for approximately \$47 million from the California Department of Housing and Community Development (HCD). These funds will be used to develop a Regional Housing Strategy Framework and provide planning resources, grants and services to jurisdictions to implement their 6th cycle Regional Housing Needs Assessment (RHNA) allocation, which is supportive of Connect SoCal goals and policies.

According to the 2020-2045 RTP/SCS, the Housing Site developments would be consistent with the Regional Housing Strategy Framework which places an emphasis on affordable infill housing development within transit-oriented neighborhoods. The four Housing Sites are entirely located within High Quality Transit Area (HQTA) according to SCAG which is considered a generally walkable transit village or corridor and is within one half-mile of a well-serviced transit stop or a transit corridor within 15-minute or less service frequency during peak hours. The Housing Sites are served by existing Long Beach Transit (LBT) bus lines along Orange Avenue and E. Willow Street. Moreover, the LA Metro Willow Street station is within the vicinity of the Housing Sites. With the development of the Housing Sites, a total of 385 very low, low, and moderate units would be create within the HQTA as well as an additional 339 above moderate units. The SCAG RHNA allocation for the City identified 329 very low, low, and moderate units with 188 above moderate income units. The Housing Site developments would sufficiently allocate the SCAG RHNA identified number of units for each affordability level as well as additional units and would be consistent with the goals of the 2020-2045 RTP/SCS.

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46 Southern California Association of Governments (SCAG), Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft, "Chapter 1," <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>, Accessed on July 10, 2020.

For these reasons, the proposed Project and the development of the Housing Sites would not conflict with SCAG's 2020-2045 RTP/SCS.

### **City of Signal Hill General Plan**

The adopted General Plan is a blueprint for future development and focuses on the long-term goals of the city or county. The City's General Plan includes the following elements: Land Use, Circulation, Environmental Resources, Housing, Noise, and Safety.

Development of the Housing Sites would be consistent with the General Plan, including policies and programs adopted to address environmental impacts, after the proposed amendments to the General Plan, designation map, and the zoning code. The adoption of the 2021-2029 Housing Element and the development of the Housing Sites would not remove or modify any policies or measures from the General Plan that are intended for environmental protection and would not conflict with any General Plan policies or measures that are intended for environmental protection. The four Housing Sites identified within the City would require General Plan amendments in order for future development to occur. The General Plan Designation Amendments would meet the objectives outlined within the Land Use Element to establish more residential uses and also meet the philosophy, character, and quality of the existing land uses.

### **Conclusion**

As shown above, the adoption of the 2021-2029 Housing Element and the development of the Housing Sites would not conflict with CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, or the City's General Plan. As such, impacts would be less than significant.

## **5. MITIGATION MEASURES**

Project impacts to greenhouse gas emissions is less than significant. No mitigation measures are required.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Project impacts to greenhouse gas emissions is less than significant. No mitigation measures are required.

## 4.6 HAZARDS AND HAZARDOUS MATERIALS

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### 1. INTRODUCTION

This section addresses the potential presence of hazardous materials and conditions within the 2021-2029 Housing Element Update (Housing Element Update) (Project) and analyzes the potential risk of such materials in proximity to proposed development on candidate housing sites (Housing Sites) that could occur under implementation of the Project. This section discusses the existing conditions in the Project area, existing policies and regulations regarding hazards and hazardous materials, and analyzes the potential impacts. The primary source of information for this section comes from

- *Phase I Environmental Site Assessment, 2771 Gundry Avenue, Orange Bluff*, by Mearns Consulting LLC, February 5, 2021 (**Appendix F.1: Orange Bluff Phase I ESA**);
- *Summary Report for Methane Soil Gas Investigation Services at Proposed New Orange Bluff Site*, by DL Science Inc., April 6, 2021 (**Appendix F.2: Orange Bluff Methane Investigation Report**);
- *Human Health Risk Assessment, 2771 Gundry Avenue, Orange Bluff*, by Mearns Consulting LLC, June 30, 2021 (**Appendix F.3: Orange Bluff HHRA**);
- *Review of Human Health Risk Assessment – 2771 Gundy Avenue, Signal Hill, California 90755*, by CAL EPA Office of Environmental Health Hazard Assessment, July 16, 2021 (**Appendix F.4: Orange Bluff HHRA Review**);
- *Phase II Environmental Site Assessment, 2771 Gundry Avenue, Orange Bluff*, by Mearns Consulting LLC, April 21, 2021 (**Appendix F.5: Orange Bluff Phase II ESA**);
- *Phase I Environmental Site Assessment, Northwest Corner E. Willow St. and Walnut Avenue, Walnut Bluff*, by Mearns Consulting LLC, February 19, 2021 (**Appendix F.6: Walnut Bluff Phase I ESA**);
- *Summary Report for Methane Soil Gas Investigation Services at Walnut Bluff Site*, by DL Science Inc., March 25, 2021 (**Appendix F.7: Walnut Bluff Methane Investigation Report**);
- *Human Health Risk Assessment, Northwest Corner of E. Willow St. and Walnut Avenue, Walnut Bluff, Signal Hill, California 90755* by Mearns Consulting LLC, June 16, 2021 (**Appendix F.8: Walnut Bluff HHRA**);
- *Review of Human Health Risk Assessment – 2175 Cherry Ave., Signal Hills, California, 90755* by CAL EPA Office of Environmental Health Hazard Assessment, July 19, 2021 (**Appendix F.9: Walnut Bluff HHRA Review**);
- *Phase II Environmental Site Assessment, Northwest Corner of E. Willow St. and Walnut Avenue, Walnut Bluff, Signal Hill, California 90755*, by Mearns Consulting LLC, April 22, 2021 (**Appendix F.10: Walnut Bluff Phase II ESA**);

- *Phase I Environmental Site Assessment, Northeast Corner E Willow St. and Walnut Avenue, Town Center Northwest, Signal Hill, California 90755*, by Mearns Consulting LLC, May 27, 2021 (**Appendix F.11: Town Center Northwest Phase I ESA**);
- *Approval, Summary Report for Methane Soil Gas Investigation Services at Proposed Town Center North West Site, Northeast Corner of Intersection of E. Willow Ave. and Walnut Ave., Signal Hill, California 90755*, by Mearns Consulting LLC, July 19, 2021 (**Appendix F.12: Town Center Northwest Methane Investigation Report Approval Letter**);
- *Phase I Environmental Site Assessment, Northeast Corner E Willow St. and Walnut Avenue, Heritage Square, Signal Hill, California 90755*, by Mearns Consulting LLC, February 1, 2018 (**Appendix F.13: Heritage Square Phase I ESA**);
- *Summary Report for Methane Soil Gas Investigation Services at Heritage Square, Signal Hill, California 90755*, by Mearns Consulting LLC, July 19, 2021 (**Appendix F.14: Heritage Square Methane Investigation Summary Report**);
- *Human Health Risk Assessment, Heritage Square Project, Signal Hill, California 90755*, by Mearns Consulting LLC, July 15, 2021 (**Appendix F.15: Heritage Square HHRA**);
- *Phase II Environmental Site Assessment, Heritage Square Project, Signal Hill, California 90755*, by Mearns Consulting LLC, December 21, 2018 (**Appendix F.16: Heritage Square Phase II ESA**);
- *Review of Human Health Risk Assessment – Heritage Square*, by CAL EPA Office of Environmental Health Hazard Assessment, July 16, 2021 (**Appendix F.17: Heritage Square HHRA Review**);

## 2. ENVIRONMENTAL SETTING

### *Historical Context*

Signal Hill has a rich and colorful history. Most famous for the discovery of oil in 1921, and commonly known as an "oil town," the City is now a diverse community with an "oil history" and a bright future.<sup>1</sup> Oil production continued to be Signal Hill's mainstay until declining oil prices reduced production in the 1970s. In 1974 the Signal Hill Redevelopment Agency was formed, and the city focused on economic development and diversity from oil.

The 2.25 square mile city of Signal Hill lies within the Long Beach Oil Field. The City's legacy of oil production began in 1919 when oil was first discovered.<sup>2</sup> The Long Beach Field is termed a mega giant field. It is the eighth-largest by cumulative production in California, and although now largely depleted, still officially retains around 5 million barrels of recoverable oil.<sup>3</sup>

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1 City of Signal Hill. History of Signal Hill. <https://www.cityofsignalhill.org/218/History-of-Signal-Hill>. Accessed June 2021.

2 City of Signal Hill. Oil Well Information. <https://www.cityofsignalhill.org/111/Oil-Well-Information>. Accessed June 2021.

3 City of Signal Hill. Oil Well Information. <https://www.cityofsignalhill.org/111/Oil-Well-Information>. Accessed June 2021.

The historical use of the properties in the City includes oil fields, laydown yards, operating units and commercial/industrial businesses. The adjacent properties include commercial/industrial businesses, oilfields, single and multifamily residences. Although the City was once dominated by oil rigs, Signal Hill is now predominantly single and multi-family homes, commercial developments, modern office buildings and industrial parks. The oil rigs that once heavily dotted the hillside now give way for views of single-family residences, retail commercial developments, and modern industrial parks.

### ***Existing Conditions***

Even with the dramatic land use changes to the City over the decades, the oil field remains moderately productive, with oil wells and oilfield infrastructure intermixed with commercial and residential development. Many properties contain abandoned oil wells. However, these wells no longer produce and have been permanently sealed.<sup>4</sup> Title 16 of the City's Municipal Code, the Oil Code, regulates oil production facilities and operations and sets out the standards for development over and around active and abandoned oil wells.

### **Housing Sites**

#### ***Orange Bluff***

The historical use of the proposed Orange Bluff Housing Site is an oil field. Numerous previously abandoned oil wells associated piping runs, a previous 2,310,000-gallon capacity aboveground storage tank, dehydration plant, boilers, pump station, laboratories, former bio cells used to remediation oilfield impacted material and operating units are/were located onsite. Operating units, a stormwater detention basin, a small one-story stucco building, used as a laboratory and new automobiles currently are onsite.

The proposed Housing Site is accessible from the adjacent property on southern boundary of the Site and is currently undeveloped land used as overflow parking for new automobiles and a few operating units. A small stucco building, located at 1396 East 28th Street, is located at the southwest corner of East 28th Street and Gundry Avenue with a small parking lot on the south side of East 28th Street. Due to its age, the building may have asbestos containing building materials, lead-based paint and/or fluorescent lights. There are 20 oil wells onsite, it appears nine are previously abandoned, six are idle and four are active (see **Appendix F.1: Orange Bluff Phase I ESA**). Numerous pipelines underlie Orange Avenue, East 28<sup>th</sup> Street, Gundry Avenue and East 27<sup>th</sup> Street, effectively surrounding the Site. Several of these pipelines are

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4 City of Signal Hill. Developing Around Oil Wells. <https://www.cityofsignalhill.org/421/Developing-Around-Oil-Wells>. Accessed June 2021.

owned by entities no longer in business and therefore more than likely are abandoned. Abandoned pipelines that historically conveyed wet gas, crude oil, gas, dry gas and/or natural gas is common onsite.

Methane measurements onsite range from non-detect (ND), or less than 1,000 parts per million by volume (ppmv) to 279,000 ppmv. Methane concentrations in soil vapors onsite range from 11,000 ppmv to 140,000 ppmv (see **Appendix F.2: Orange Bluff Methane Investigation Report**).

Chemicals of Potential Concern (COPCs) in soil vapor on the proposed Orange Bluff Housing Site are total petroleum hydrocarbons (TPH, gasoline range) and chlorinated and non-chlorinated volatile organic compounds (VOCs). COPCs present in the soil onsite are TPH, ethylbenzene, cumene, naphthalene, n-propylbenzene, cadmium, hexavalent chromium and molybdenum (see **Appendix F.3: Orange Bluff Site HHRA** and **Appendix F.4: Orange Bluff HHRA Review**).

### ***Walnut Bluff***

The historical use of the Housing Site is an oil field. Seven oil wells (two operating, two idle and three previously abandoned), associated piping runs and aboveground storage tanks are/were located onsite. Operating units, a stormwater system with detention basins and piping currently are onsite.

The proposed Housing Site is accessible from the Walnut Avenue and comprises of vacant, undeveloped land. Numerous pipelines underlie East Willow Street, Walnut Avenue and the proposed Walnut Bluff Site. Several of these pipelines are owned by entities no longer in business and therefore more than likely are abandoned. Abandoned pipelines that historically conveyed wet gas, crude oil, gas, dry gas and/or natural may impact the site. There are no sources of asbestos containing building material, lead-based paint or fluorescent lights onsite (see **Appendix F.6: Walnut Bluff Phase I ESA**).

Methane measurements onsite range from ND to 898,000 ppmv. Methane concentrations in soil vapors onsite range from 34,000 ppmv to 200,000 ppmv (see **Appendix F.7: Walnut Bluff Methane Investigation Report**).

COPCs in soil vapor on the proposed Walnut Bluff Housing Site are TPH, metals and VOCs. COPCs present in the soil vapor onsite include benzene, toluene, ethylbenzene, tetrachloroethylene (PCE), total xylenes and gasoline range organics (GROs) (see **Appendix F.8: Walnut Bluff Site HHRA** and **Appendix F.9: Walnut Bluff HHRA Review**).

### ***Town Center Northwest***

The historical use of the Housing Site is an oil field. There are 34 oil wells onsite or adjacent to it; specifically, there are 19 wells onsite and 15 within the eastern two-thirds of the Signal Hill Petroleum,



Inc. Drill Site (SHP Drill Site) which is not part of the Project; the western one-third of this portion of this Site is part of the Project.<sup>5</sup> Operating units, a stormwater system with detention basins, swales, berms and piping are currently onsite. The Site is used by Signal Hill Petroleum, Inc. (SHP) to store drilling equipment.

The Town Center Northwest Site is accessible via Walnut Avenue and is vacant and undeveloped. It is covered with dirt, grass weeds, gravel, asphalt and concrete. The Site consists of three operating units, six idle units and 10 abandoned oil wells used for storage of oil field equipment. Stormwater prevention measures are present throughout the Housing Site. The eastern two-thirds of the SHP Drill Site contains seven active operating units, seven idle units and one previously abandoned oil well. Numerous pipelines underlie Walnut Avenue and East Willow Street. Several of these pipelines are owned by entities no longer in business and therefore more than likely are abandoned. Abandoned pipelines that historically conveyed wet gas, crude oil, gas, dry gas, natural gas and wastewater may impact the Housing Site. There are no sources of asbestos containing building material, lead-based paint or fluorescent lights onsite (see **Appendix F.11: Town Center Northwest Phase I ESA**).

### ***Heritage Square***

The historical use of the Housing Site is an oil field. There are 25 oil wells on the 7.14-acre Site. Oil derricks, sumps and aboveground storage tanks were previously located onsite. Operating units, pipelines and a stormwater drainage system, with detention basins and piping are currently onsite.

The Heritage Square Site is accessible via Cherry Avenue and is currently unoccupied. The 3-acre portion of the Housing Site identified as 2475 Cherry Avenue, or 2500 Cherry Avenue, was redeveloped in 2010 with a commercial building and a surface parking lot covering approximately 1.5-acres. During the redevelopment effort an unknown quantity of soil was removed from the portion of the Site. The remaining 1.5-acres is vacant and undeveloped with active oil field activity. The four onsite buildings at 2435, 2449, 2461 Gardena Avenue were constructed between 1959 and 1960 and potentially contain asbestos containing building materials and/or lead-based paint. The portion of the Housing Site identified as 2475 and 2485 Gardena Avenue remains vacant and undeveloped with active oil field activity. The portion of the Site identified as 1800 East Burnett Street remains vacant and undeveloped with active oil field activity (see **Appendix F.13: Heritage Square Phase I ESA**). There is no evidence hazardous materials are stored, used, spilled or dumped on the Housing Site and there are no recognized environmental conditions onsite or adjacent to the Site.

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5 The SHP Drill Site is not part of the Project but is surrounded by the Town Center Northwest Site on all sides.

Methane measurements onsite range from ND to 802,000 ppmv. Methane concentrations in soil vapors onsite range from ND ppmv to 87,200 ppmv (see **Appendix F.14: Heritage Square Methane Investigation Summary Report**).

COPCs in soil on the proposed Housing Site are TPH-diesel range (TPH-d), C23-C40, lead, mercury and thallium. COPCs present in the soil vapor onsite include sec-butylbenzene, tert-butylbenzene, dichlorodifluoromethane, naphthalene, PCE, toluene, 1,2,4-trimethylbenzene and di-isopropylether (DIPE) (see **Appendix F.15: Heritage Square HHRA**).

### **3. REGULATORY SETTING**

The regulations governing the storage and handling of hazardous materials are complex, with a varying degree of overlap associated with existing federal, State, and local programs. In general, applicable laws and regulations are aimed at hazardous materials inventory and emergency response planning, risk planning and accident prevention, employee hazard communication, public notification of potential exposure to specific chemicals, storage of hazardous materials including aboveground storage tanks (AST) and USTs. A description of the major regulations, policies, and programs regulating hazardous materials storage and handling applicable to activities at the Project site is provided below.

#### **Federal Setting**

A variety of laws and regulations governing the management and control of hazardous substances has been established at the federal level to protect the environment.

#### **Regulating Agencies**

##### **United States Environmental Protection Agency**

The USEPA is the main federal agency responsible for enforcing regulations relating to hazardous materials and wastes, including evaluation and remediation of contamination and hazardous wastes. The agency works collaboratively with other agencies to enforce materials handling and storage regulations and site cleanup requirements. The U.S. Occupational Safety and Health Administration (USOSHA) and the USDOT are authorized to regulate safe transport of hazardous materials.

Several USEPA programs address the disposal and cleanup of various hazardous waste materials, including lead, asbestos-containing materials (ACMs), pesticides, and polychlorinated biphenyls (PCBs).<sup>6</sup>

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6 US EPA. Waste, Chemical, and Cleanup Enforcement. <https://www.epa.gov/enforcement/waste-chemical-and-cleanupenforcement>. Accessed May 2021.

## ***US Occupational Safety and Health Administration***

USOSHA is authorized to regulate safe transport of hazardous materials. Specifically, USOSHA implements regulation related to materials handling. USOSHA requirements are intended to promote worker safety, worker training, and a worker's right to know.

## **Legislation, Regulations, and Programs**

### **Comprehensive Environmental Response, Compensation, and Liability Act**

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—better known as Superfund—provides federal funds to clean up uncontrolled or abandoned hazardous waste sites, accidents, spills, discharges, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, USEPA was given authority to seek out those parties responsible for any hazardous release and ensure their cooperation in the cleanup.

### **Emergency Planning and Community Right-to-know Act**

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986,<sup>7</sup> commonly known as Title III of the Superfund Amendments and Reauthorization Act (SARA), was enacted by Congress as national legislation on community safety. This law was designated to help local communities protect public health, safety, and the environment from chemical hazards. The primary purpose of EPCRA is to inform communities and citizens of chemical hazards in their areas by requiring businesses to report the locations and quantities of chemicals stored on site to State and local agencies. These reports help communities prepare to respond to chemical spills and similar emergencies. Section 313.1 of EPCRA requires manufacturers to report releases to the environment (air, soil, and water) of more than 600 designated toxic chemicals; report off-site transfers of waste for treatment or disposal at separate facilities; implement pollution prevention measures and activities; and participate in chemical recycling. These annual reports are submitted to the USEPA and state agencies. The USEPA maintains and publishes a database that contains information on toxic chemical releases and other waste management activities by certain industry groups and federal facilities. This online, publicly available, national digital database is called the Toxics Release Inventory (TRI) and was expanded by the Pollution Prevention Act of 1990.

To implement EPCRA, Congress required each state to appoint a State Emergency Response Commission (SERC) to coordinate planning and implementation activities associated with hazardous materials. The SERCs were required to divide their states into emergency planning districts and to name a local emergency planning committee (LEPC) for each district. The federal EPCRA program is implemented and

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7 42 USC sec. 11001 et seq., Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986.

administered in California by Cal OES, a SERC, 6 LEPCs, and 83 certified Unified Program agencies (CUPAs). Cal OES coordinates and provides staff support to the SERC and LEPCs. Broad representation by fire fighters, health officials, government and media representatives, community groups, industrial facilities, and emergency managers ensures that all necessary elements of the planning process are represented.

### **Resource Conservation and Recovery Act**

The 1976 Resource Conservation and Recovery Act (RCRA) was the first major federal act regulating the potential health and environmental problems associated with hazardous and nonhazardous solid waste. RCRA and the implementation regulations developed by the USEPA provide the general framework of national hazardous waste management systems. This framework includes the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities. RCRA allows individual states to develop their own program for the regulation of hazardous wastes as long as state regulations are at least as stringent as the RCRA.

### **Toxic Substances Control Act**

The Toxic Substances Control Act of 1976<sup>8</sup> was enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The USEPA repeatedly screens these chemicals and can require reporting or testing of any that may pose an environmental or human health hazard. It can ban the manufacture and import of chemicals that pose an unreasonable risk. Also, the USEPA has mechanisms in place to track the thousands of new chemicals that industry develops each year with either unknown or dangerous characteristics. It was given the authority to control these chemicals as necessary to protect human health and the environment. Within that authority, the Toxic Substances Control Act addresses the production, importation, use, and disposal of specific chemicals including PCBs, ACMs, radon, and lead-based paint. The act supplements other federal statutes, including the Clean Air Act and the TRI under EPCRA.

### **Lead Renovation, Repair, and Painting Program**

USEPA's Lead Renovation, Repair, and Painting Rule (RRP Rule) requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, childcare facilities and pre-schools built before 1978 have their firm certified by USEPA (or an USEPA authorized state), use certified renovators who are trained by USEPA-approved training providers, and follow lead-safe work practices.

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8 Toxic Substances Control Act of 1976, 15 USC sec. 2601 et seq.

## **Hazardous Materials Transportation Act**

The USDOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) Title 49, Sections 171–180, regulate the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This act applies to the Project because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

## **State Setting**

### **Regulating Agencies**

#### **California Environmental Protection Agency**

The California Environmental Protection Agency (CalEPA) was created in 1991 with the signing of Executive Order W-5-91 by Governor Pete Wilson. Several State regulatory boards, departments, and offices were placed under the CalEPA umbrella to create a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of State resources. Among those responsible for hazardous materials and waste management are the Department of Toxic Substance Control (DTSC), Department of Pesticide Regulation, the State Water Quality Control Board and its Regional Water Quality Control Boards (RWQCB), and Office of Environmental Health Hazard Assessment. CalEPA also oversees the unified hazardous waste and hazardous materials management regulatory program (Unified Program), which consolidates, coordinates, and makes consistent the following six programs:

- Hazardous Materials Release Response Plans and Inventories (Business Plans);
- Underground Storage Tank (UST) Program;
- Aboveground Petroleum Storage Tank Act;
- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs;
- California Uniform Fire Code: Hazardous Material Management Plans and Inventory Statements; and
- California Accidental Release Prevention (CalARP) Program.

In addition, in compliance with California Public Resources Code Section 3229, before commencing any work to abandon any oil well, the owner or operator shall file with the CalGEM, formerly known as the

Division of Oil, Gas, and Geothermal Resources, a written notice of intention to abandon the well (California State Division of Oil, Gas and Geothermal Resources form OG108).

### **Department of Toxic Substances Control**

DTSC is authorized by CalEPA to administer the hazardous waste laws and oversee remediation of hazardous wastes sites. Regulations require that DTSC “shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all the following: (1) All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code (HSC).”<sup>9</sup>

The DTSC regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. Approximately 1,000 scientists, engineers, and specialized support staff ensure that companies and individuals handle, transport, store, treat, dispose of, and clean up hazardous wastes appropriately. Through these measures, DTSC contributes to greater safety for all Californians, and less hazardous waste reaches the environment. DTSC’s role is limited to projects with State funding. DTSC oversight is not required where a State-funded project is statutorily or categorically exempt from CEQA.

The hazardous waste facilities identified in HSC Section 25187.5 are those where DTSC has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under the HSC, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

### **Certified Unified Program Agency**

Californians are protected from hazardous waste and hazardous materials by a Unified Program that ensures consistency throughout the State regarding administrative requirements, permits, inspections, and enforcement. CalEPA oversees the statewide implementation of the Unified Program and its 83 certified local government agencies, known as Certified Unified Program Agencies (CUPAs), which apply regulatory standards established by five different State agencies. The CUPA can be a county, city, or joint powers authority. A participating agency is a local agency that has been designated by the local CUPA to administer one or more Unified Programs within their jurisdiction on behalf of the CUPA. A designated agency is a local agency that has not been certified by CalEPA to become a CUPA but is the responsible

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9 California Government Code (GOV), Development Permits for Classes of Projects [65960 - 65964.1], sec. 65962.5

local agency that would implement the six Unified Programs until they are certified. Currently, there are 83 CUPAs in California. The CUPA for the County is the Los Angeles County Fire Department (LACoFD).

### **California Occupational Safety and Health Administration**

The California Occupational Safety and Health Administration (Cal/OSHA) has set forth work requirements for disturbance of ACMs, including removal operations for all types of ACMs. In addition, the agency has developed standards for general industry and the construction industry hazardous waste operations and emergency response. Cal/OSHA ensures that employers must have controls to reduce and monitor exposure levels of hazardous materials; and oversees an informational program describing any exposure during operations and the inspection of drums and containers prior to removal or opening. Decontamination procedures and emergency response plans must be in place before employees begin working in hazardous waste operations.

### **Legislation and Regulations**

#### **Senate Bill 14: California Hazardous Waste Source Reduction and Management Review Act of 1989**

The California Hazardous Waste Source Reduction and Management Review Act of 1989, also known as Senate Bill (SB) 14, required large-quantity generators—those that annually produce more than 13.2 tons of hazardous waste or 26.4 pounds of extremely hazardous waste—to periodically conduct a source evaluation of their facilities and develop plans to reduce their volume of hazardous waste through measures such as changes in raw materials production methods, product reformulations, and employee training.<sup>10</sup> The primary objective of the legislation was to reduce the quantity of hazardous waste generated in California and thereby promote public health and improve environmental quality. Generators that exceed the aforementioned waste volume thresholds are required to file waste minimization reports with DTSC every 4 years.

### **California Emergency Response Plan**

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by Cal OES, which coordinates the responses of other agencies, including CalEPA, the California Highway Patrol, the RWQCB, and the LACoFD.

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10 California Department of Toxic Substances Control (DTSC), “SB14 Introduction and Overview” (July 2012), <https://dtsc.ca.gov/sb14/sb14-introduction-and-overview/>. Accessed May 2021.

### **Hazardous Waste Control Act**

The Hazardous Waste Control Act (HWCA) is the State equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste.<sup>11</sup> This act implements the RCRA “cradle-to-grave” waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, and transportation and permitting requirements, as well as in its penalties for violations. HWCA applies to the Project because contractors will be required to comply with its hazardous waste requirements to reduce the possibility of spills.

### **Hazardous Materials Management Plans**

In January 1996, CalEPA adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program).<sup>12</sup> As noted previously, the six program elements of the Unified Program are hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous material release response plans and inventories; risk management and prevention programs; and Uniform Fire Code hazardous materials management plans and inventories. The program is implemented at the local level by a local agency, the CUPA, which is responsible for consolidating the administration of the six program elements within its jurisdiction.

State and federal laws require detailed planning (1) to ensure that hazardous materials are properly handled, used, stored, and disposed of; and (2) in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment.

### **California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act)**

The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (HSC, Division 20, Chapter 6.95, Article 1).<sup>13</sup> Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the State. Local agencies are responsible for administering these regulations. Several State agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including CalEPA and Cal OES. The California Highway Patrol and California Department of Transportation (Caltrans) enforce regulations

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11 DTSC, California Hazardous Waste and Hazardous Substances Law , California Code of Regulations, Title 22, Division 4.5, Environmental Health Standards for the Management of Hazardous Waste.

12 CalEPA, “Unified Program,” <https://calepa.ca.gov/cupa/>.



specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways. The Business Plan Act applies to this Project because contractors will be required to comply with its handling, storage, and transportation requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

### **California Government Code Section 65962.5: Cortese List**

The provisions of Government Code Section 65962.5 are commonly referred to as the Cortese List.<sup>14</sup> The Cortese List is a planning document used by State and local agencies to provide information about hazardous materials release sites. Section 65962.5 requires CalEPA to develop an updated Cortese List annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

## **Regional and Local Setting**

### **South Coast Air Quality Management District**

The South Coast Air Quality Management District (SCAQMD) regulates asbestos through Rule 1403, Asbestos Emissions from Renovation/Demolition Activities. Rule 1403 regulates asbestos as a toxic material and controls the emissions of asbestos from demolition and renovation activities by specifying agency notifications, appropriate removal procedures, and handling and cleanup procedures. Rule 1403 applies to owners and operators involved in the demolition or renovation of asbestos-containing structures, asbestos storage facilities, and waste disposal sites. SCAQMD also regulates volatile organic compound (VOC) emissions from contaminated soil through Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil. Rule 1166 sets requirements to control the emission of VOCs from excavating, grading, handling, and treating soil contaminated with VOCs as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

### **Los Angeles Regional Water Quality Control Board**

The Los Angeles Regional Water Quality Control Board (LARWQCB) is one of nine Statewide regional boards. The LARWQCB protects ground and surface water quality in the Los Angeles region, including the coastal watersheds of Los Angeles and Ventura Counties, along with very small portions of Kern and Santa

Barbara Counties. In order to carry out its mission to preserve and enhance water quality, the LARWQCB conducts the following range of activities to protect ground and surface waters under its jurisdictions:<sup>13</sup>

- Addresses region-wide and specific water quality concerns through updates of the Water Quality Control Plan for the Los Angeles region;
- Prepares, monitors compliance with, and enforces Waste Discharge Requirements, including National Pollutant Discharge Elimination System (NPDES) permits;
- Implements and enforces local stormwater control efforts;
- Regulates the cleanup from contaminated sites, which have already been polluted or have the potential to pollute ground or surface water;
- Enforces water quality laws, regulations, and waste discharge requirements;
- Coordinates with other public agencies and groups that are concerned with water quality; and
- Informs and involves the public on water quality issues.

Additionally, the LARWQCB has the responsibility for oversight of leaking USTs and the responsibility for inspecting ASTs and ensuring SPCC's have been prepared within the County.<sup>14</sup>

### **Los Angeles County Hazardous Materials Control Program**

In 1982, the Los Angeles County Board of Supervisors established the Hazardous Materials Control Program in the Department of Health Services (DHS) for the inspection of businesses generating hazardous waste. In 1991, the program merged into the LACoFD and it became the Health Hazardous Materials Division (HHMD). In 1997, HHMD became a CUPA to administer the following programs within Los Angeles County: the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (CalARP), the Aboveground Storage Tank Program and the Underground Storage Tank Program. The LACoFD, Prevention Services Bureau, HHMD is a CUPA that administer the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the CalARP, the Aboveground Storage Tank Program, and the Underground Storage Tank Program.

The Los Angeles County Sanitation District and its Household Hazardous Waste and Electronic Collection Program (HWW) provides Los Angeles County residents with a legal way to dispose of unwanted household chemicals that cannot be disposed of in the regular trash.

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13 California Waterboards, About Us, [https://www.waterboards.ca.gov/losangeles/about\\_us/](https://www.waterboards.ca.gov/losangeles/about_us/), accessed May 2021.

14 Health and Safety Code Section 25270.8.

## Signal Hill General Plan Safety Element

The Safety Element is one of seven General Plan elements required by the State of California. This document provides the City of Signal Hill with background information on hazards and public safety services, and establishes goals, policy direction, and implementation measures intended to limit the community's exposure to a range of hazards. This element is a comprehensive update of the 1986 Safety Element and incorporates the latest available information from local, state, and federal sources regarding public safety and hazards. This element includes:

- Existing conditions & background information on the City and existing police, fire, and medical services serving the City.
- A discussion of seismic and geologic hazards, including surface rupture and ground shaking resulting from earthquakes, liquefaction, landslides, and soil settlement and expansion.
- A discussion of oilfield hazards related to hazardous materials impacts, with a focus on identifying and minimizing risks associated with oil production, storage, and transportation activities.
- An evaluation of other hazards, including fires, flooding, tsunamis, seiche, and dam failure, including evacuation routes.
- Goals, policies, and implementation measures that provide direction and guidance for the City of Signal Hill to minimize impacts resulting from hazards over the coming decades.

## Signal Hill Municipal Code

### ***Title 16: City of Signal Hill Oil and Gas Code***

Title 16 regulates the drilling for production, processing, storage and transport by pipeline of petroleum and other hydrocarbon substances, timely and proper well abandonment and well site restoration and removal of oil and gas related facilities, reclamation and remediation of host sites and final disposition of pipelines in compliance with applicable laws and permits so that these activities may be conducted in conformance with federal, state, and local requirements, and to mitigate the impact of oil-related activities on urban development.

## 4. ENVIRONMENTAL IMPACTS

### ***Thresholds of Significance***

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to hazards if it would:

- Threshold IV. HAZ-1:** Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Threshold IV. HAZ-2:** Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- Threshold IV. HAZ-3:** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- Threshold IV. HAZ-4:** Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- Threshold IV. HAZ-5:** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
- Threshold IV. HAZ-6:** Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Threshold IV. HAZ-7:** Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

## ***Methodology***

To evaluate potential impacts regarding hazards and hazardous materials, Phase I and Phase II ESAs, Methane Gas Summary Reports and Human Health Risk Assessments (HHRAs) were prepared for the Project Site. The analysis of the potential impacts regarding hazardous materials management was based on review of identified publicly available documents and on-site reconnaissance. In addition, the analysis of the potential impacts regarding the generation and disposal of ACMs, lead based paint, and PCBs were based on the provisions of applicable local, State, and federal regulations.

The site reconnaissance included excavation and drilling on the four Housing Sites. Soil matrix samples were collected and tested. All drilling, logging and sampling activities were conducted by or under direct supervision of a California Professional Geologist, and in accordance with California Well Standards presented in the Department of Water Resources (DWR).

The site reconnaissance identified the potential for environmental conditions to exist on the Project site. Recommendations regarding the construction of the Project are identified in response to the conditions that exist on the four Housing Sites. Various reports including Phase I and Phase II ESAs, Methane Gas Summary Reports and HHRAs are provided in **Appendix F.1—Appendix F.16** of this Draft EIR.

### ***Environmental Impacts***

#### **Threshold IV. HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Implementation of the proposed Project would not directly construct new housing in the City but would promote and facilitate development of new residential land uses. However, implementation of the Housing Element Update (HEU) and would facilitate new residential construction in order to meet the City's RHNA allocation. Future construction on the Housing Sites would involve site clearing; bioremediation of soils and subsurface materials; demolition of previous structures and piping remnants; daylighting and leak testing of oil wells; construction of new residential buildings; and the installation of utilities and landscaping. These activities may require the transport of contaminated soil and the use of hazardous substances during construction. In addition, construction activities would use hazardous materials such as fuels (gasoline and diesel), oils and lubricants, paints and paint thinners, glues, cleaners (which could include solvents and corrosives in addition to soaps and detergents) and possibly pesticides and herbicides. Future residential land uses would not be expected to transport, use, store or dispose of substantial amounts of hazardous materials.

### ***Construction***

Construction activities on the Housing Sites are anticipated to involve the use of typical materials that are potentially hazardous, including vehicle fuels, paints, mastics, solvents, and other acidic or alkaline solutions that would require special handling, transport, and disposal. Additionally, the demolition and removal of existing structures and facility remnants such as underground pipes and the daylighting of oil wells within the Project Site could potentially result in the exposure of hazardous materials such as ACMs, lead-based paint and other potentially hazardous building materials in some form as part of the building materials, such as PCBs, mercury or chlorofluorocarbons in fluorescent lighting and electrical switches as well as potentially hazardous VOCs in onsite soils.

In accordance with City, State, and federal regulations, an evaluation of hazardous building materials would be performed prior to the start of demolition of any construction to determine if remediation and abatement of ACMs and lead-based paint is required. The ACMs and lead-based paint containing hazardous waste and debris encountered/generated during demolition activities would be disposed of in

accordance with applicable local, State, and federal regulations. Any other waste discovered such as fluorescent bulbs, ballast, thermostats, electrical switches, and batteries would also be disposed of in accordance with applicable local, State and federal regulations. Through compliance with applicable local, State and federal regulations, the proposed Project impacts related to the routine transport, use, or disposal of hazardous materials during building demolition would be less than significant.

All potentially hazardous materials used during construction would be used and stored in compliance with applicable federal, State, and local regulations. As the use and transport of these hazardous materials would be limited, in terms of volume and duration, these materials are not considered a significant hazard to the public or environment. Additionally, the Los Angeles County Fire Department would have the authority to perform inspections and enforce federal and State laws governing the storage, use, transport, and disposal of hazardous materials and wastes.

Furthermore, any spills or leakages encountered during construction would be required to be remediated in accordance with the State and local regulations for hazardous waste cleanup. The potential for construction materials to cause contamination would be reduced through the implementation of a stormwater pollution prevention plan (SWPPP), in accordance with NPDES.

Implementation of **Mitigation Measure (MM) HAZ-1** would require the preparation of a soil management plan (SMP) prior to commencement of ground disturbing activities as approved by the SCAQMD would be completed prior to construction activities. **MM HAZ-1** would ensure the SMP would provide instructions for appropriate actions in the event discolored or odiferous soils are discovered during grading. Abandoned oil wells and pipelines and idle oil wells present on the Housing Sites would be located, daylighted and methane gas leak tested and fitted with vent cones and risers through incorporation of **MM HAZ-2** through **MM HAZ-4**. Daylighting oil wells and pipelines involves the disturbance of soils and monitoring for VOCs which are required to be below 50 parts per million by volume (ppmv). Soil impacted with TPH and metals may be hauled off-site for disposal to a licensed landfill upon completion of a waste profile and acceptance by the receiving facility. Waste classification will be conducted in accordance with 22 CCR Division 4.5, Chapter 11, Article 3 and 40 CFR 261 Subpart C. The on-site TPH impacted soil may meet the criteria for use as daily cover. On-site treatment of metals (lead) impacted soil may be implemented prior to transfer off site for disposal. Trucks will follow the designated hauling route as required by the City of Signal Hill (see **Appendix F.1—Appendix F.16**). All applicable regulations would be followed to minimize adverse exposure of contaminated soil to the public.

Based on the identification of the existing conditions at the Project Site described previously, as well as the use of hazardous substances during construction of the Project, there is the potential for an adverse impact to the environment and other sensitive receptors through the routine transport, use, or disposal

of hazardous materials. However, during Project construction, all activities that relate to existing on-site environmental conditions would be subject to the requirements of **MM HAZ-1** through **MM HAZ-4** and applicable local, State, and federal regulations relating to the routine transport, use, and disposal of hazards and hazardous materials which appropriately address all of the environmental conditions that are present at the Project Site. Through required compliance with these mitigation measures and regulatory compliance measures, the Project would not result in adverse impacts related to the routine transport, use, and disposal of hazards and hazardous materials during construction and impacts would be less than significant.

### ***Operation***

Operation and maintenance of the proposed residential Project would not involve the routine transport, use, or disposal of hazardous materials. Further, the types and amounts of materials that would be used in connection with the proposed Project would be typical of those used in residential neighborhoods and neighborhood uses, such as surface and floor cleaning products utilized for routine janitorial cleaning procedures. All potentially hazardous materials to be used during construction and operation of the Housing Sites would be contained, stored, and used in accordance with manufacturers' instructions and handled in accordance with all applicable standards and regulations, including but not limited to, those set forth by the federal and State Occupational Safety and Health Acts. Any associated risk would be adequately reduced to a less than significant level through implementation and compliance with these existing laws and regulations. Operational impacts through the routine transport, use, or disposal of hazardous materials would be less than significant and no mitigation measure is required.

**Threshold IV. HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

### ***Construction***

Construction of the proposed Project would involve the temporary use of hazardous materials including vehicle fuels, oils, and transmission fluids. Such use which could pose risks to construction workers or lead to soil and groundwater contamination, if not properly stored, used, or disposed. However, the materials used would not be in such quantities or stored in such a manner as to pose a significant safety hazard. These activities would also be short term or one time in nature. Project construction workers would be trained in safe handling and hazardous materials use.

Additionally, the use, storage, transport, and disposal of construction-related hazardous materials and waste would be required to conform to existing laws and regulations. These include the Hazardous

Material Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Waste Control Act, CUPA, and the California Accidental Release Prevention Program. As required by law, notification to Underground Service Alert would be made. Prior to construction an attempt to coordinate with the owners/operators of high priority underground lines would be made in order to avoid damage to high-pressure pipelines and natural gas/petroleum pipelines in the area. Compliance with applicable laws and regulations governing the use, storage, and transportation of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts to occur. For example, if a spill or leakage of petroleum products occurs during construction activities, it would be immediately contained, the hazardous material identified, and the impacted area would be remediated in compliance with applicable State and local regulations for the cleanup and disposal of that contaminant.

Phase I and Phase II ESAs, Methane Gas Summary Reports and HHRAs provided in **Appendix F.1—Appendix F.16** summarize existing pollutants on and beneath the surface of the Project Site and develops appropriate remediation actions to be completed which would be implemented prior to construction. **MM HAZ-5** would require a Methane Mitigation System to be installed below the foundations of future residential buildings on the Housing Sites. The Methane Mitigation System would eliminate the exposure pathway of methane and other chemicals of concern (COCs) that remain on-site and would mitigate vapor intrusion ensuring the Housing Sites are safe for future residential uses. Further, **MM HAZ-6** would ensure future residential uses are safe by requiring the paved areas on the Housing Sites greater than 5,000 square feet and contiguous to future residential buildings to be vented with designs to prevent surface water infiltration. Groundwater sampling data indicates there would be little to no chance COCs on the Housing Sites would affect the quality groundwater quality.

Accordingly, implementation of **MM HAZ-5** and **MM HAZ-6** prior to Project approval and compliance with applicable laws and regulations governing the use, storage, and transportation of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner which would minimize potential impacts associated with upset or accident conditions. Potential impacts regarding hazardous waste upset or accident conditions would be less than significant.

### **Operation**

Occupancy and use of the residential units would not create a significant hazard to the public or the environment and would not emit hazardous emissions. Routine maintenance and upkeep of the residential development would involve handling of small quantities of hazardous materials for activities including cleaning and local upgrades. However, as discussed under **Threshold IV.HAZ-1**, handling of such



materials would follow manufacturer's instructions and properly stored when not in use. Therefore, potential impacts associated with upset or accident conditions would be less than significant.

**Threshold IV. HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

There are no schools located within one-quarter mile of the proposed Housing Sites. The nearest school is Signal Hill Elementary School, approximately 0.5 miles south/southwest of the Housing Sites. The Project would introduce residential land uses to the Housing Sites. This land use does not generate hazardous emissions or involve the handling of acutely hazardous materials, substances or wastes. The residential land uses may involve limited transport, storage, use and disposal of small quantities of hazardous materials such as chemical cleaning agents. No special permits would be required for such limited use of common cleaning agents. The proposed restaurant may use and dispose of grease and food oils, which are not considered hazardous but do require special handling and as such would be collected in separate grease interceptors and removed by contracted haulers for transport to appropriate disposal sites. As noted in the response to **Threshold IV.HAZ-1** above, the residential land uses would involve the regular handling of minor quantities of common household chemical agents and related wastes; however, these types of wastes are typical and do not represent a hazardous materials or waste impact. Thus, a less than significant impact would occur in relation to this issue.

**Threshold IV. HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

California Government Code Section 65962.5 specifies lists of the following types of hazardous materials sites: hazardous waste facilities; hazardous waste discharges for which the State Water Quality Control Board has issued certain types of orders; public drinking water wells containing detectable levels of organic contaminants; underground storage tanks with reported unauthorized releases; and solid waste disposal facilities from which hazardous waste has migrated. While Section 65962.5 makes reference to the preparation of a list, many changes have occurred related to web-based information access since 1992 and information regarding the Cortese List is now compiled on the websites of the DTSC, the State Water Resources Control Board, and CalEPA. The DTSC maintains the EnviroStor database, which includes sites on the Cortese List and also identifies potentially hazardous sites where cleanup actions or extensive investigations are planned or have occurred. The database provides a listing of federal Superfund sites, State response sites, voluntary cleanup sites, and school cleanup sites.

The EnviroStor database is maintained by DTSC and provides access to detailed information on hazardous waste permitted sites and corrective action facilities, as well as existing site cleanup information. EnviroStor also provides information on investigation, cleanup, permitting, and/or corrective actions that are planned, being conducted, or have been completed under DTSC's oversight. The RWQCB maintains the GeoTracker database which manages sites that impact, or have the potential to impact, water quality in California. The GeoTracker database includes sites that require cleanup, are under current investigation/remediation, or have been closed with a status not requiring further investigation.

A geographical search for hazardous materials sites, as defined in Government Code Section 66962.5, was conducted based on a review of these databases. The addresses associated with the proposed Housing Sites are not included on any list compiled pursuant to Government Code Section 65962.5 (see **Appendix F.1, Appendix F.6, Appendix F.11, and Appendix F.13**). As such, the Housing Sites are not located in an area with current significant hazardous materials sites and therefore would not create a significant hazard to the public or environment. No impact would occur.

**Threshold IV. HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

The nearest public use airport is Long Beach Municipal Airport, located less than 1 mile to the northeast of the Housing Sites. The project would introduce new residential land uses. The Los Angeles County Airport Land Use Commission establishes Airport Influence Areas (AIA) to identify areas likely to be impacted by noise and flight activity created by aircraft operations at and airport. The Housing Sites are not within the AIA for Long Beach Municipal Airport (Los Angeles County Airport Land Use Commission 2003). Thus, people living or working on the future Housing Sites site would not be exposed to any safety hazards associated with the operation of the airport. As such, impact would be less than significant.

**Threshold IV. HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Both the County of Los Angeles and the City of Signal Hill have plans that include operational concepts, describe responsibilities, and outline procedures for emergency response. The County has adopted an Operational Area Emergency Response Plan, which describes the planned responses to emergencies associated with natural and man-made disasters and technological incidents. The Signal Hill (2018e) Hazard Mitigation Plan documents strategies and approaches designed to reduce loss of life and property in the event of a disaster or emergency. Key action items in the plan include improving communication

and strengthening emergency operations by increasing collaboration and coordination among the various agencies and organizations involved in emergency planning, identifying funding to implement prevention plans and programs, and continuing the education and outreach efforts.

Project implementation at the Housing Sites would not interfere with the implementation of either of these plans because the proposed Project does not introduce any new land uses not considered in the implementation of the plans and it does not place the proposed land uses in an area that would require any specialized response, nor does it place new land uses in an area that is subject to potential threats such as high fire hazard area, flood, or known hazardous materials or substance releases.

As for emergency evacuation, the roadway grid in and around Signal Hill provides multiple means of evacuation from natural, technological or human-caused disasters. As identified in the Signal Hill General Plan Safety Element, existing evacuation routes are adequate to serve the City's population, and no major improvements are considered necessary to maintain emergency access. Several of the local arterial roadways and Interstate (I-405) are major evacuation routes. Two arterial roadways are in the immediate vicinity of the project site; Cherry Avenue to the west and Willow Street to the north are designated as major evacuation routes.<sup>15</sup> Given these available emergency routes, future residents, workers, and visitors would have sufficient options for emergency evacuation at each Housing Site if necessary.

The Project would be required to meet minimum driveway width and design requirements as established by SHMC Title 15 and the Los Angeles County Fire Department.<sup>16</sup> These standards ensure that driveways are properly sized and located to facilitate emergency vehicle access and the positioning of emergency response crews during emergencies. Thus, since the development of the Housing Sites would not introduce any new land uses not already considered in emergency response plans or place the proposed land uses in an area that has been identified as high risk in relation to natural or man-made hazards, and since it would adhere to design requirements established in part to promote safety and logical evacuation, the Project would have a less than significant impact in relation to the implementation of an emergency response plan or evacuation plan.

**Threshold IV. HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?**

The California Department of Forestry and Fire Protection (Cal fire) has mapped fire hazard severity zones throughout the state. Designations include Unzoned (the lowest wildland fire risk), Moderate, High, and

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<sup>15</sup> General Plan Safety Element 2016.

<sup>16</sup> Signal Hill Municipal Code Title 15 (Buildings and Construction).

Very High. Property within the City boundaries is Unzoned, indicating a low potential for wildland fire; there are no Moderate, High, or Very High fire hazard zones in the City.<sup>17</sup> Thus, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. As such, there would be no impact.

## 5. MITIGATION MEASURES

The following Mitigation Measures (MMs) have been identified and are based on available information provided in various reports for the Housing Sites:

### **MM HAZ-1 Prepare a Soil Management Plan Prior to Commencement of Ground Disturbing Activities**

A soil management plan should be prepared prior to any soil disturbance activities to be conducted onsite. This soil management plan should provide instructions for the contractor to implement in the event discolored or odiferous soils are discovered during any grading operations. A South Coast Air Quality Management District (SCAQMD) Rule 1166 Permit and Compliance Plan should be obtained from the SCAQMD due to the presence of volatiles prior to the start of soil disturbance operations.

### **MM HAZ-2 Daylight Abandoned Oil Wells**

Previously abandoned oil wells should be located, daylighted and methane gas leak tested prior to the installation of vent cones and vent risers pursuant to the City of Signal Hill's Oil and Gas Code §16.24.030 and §16.24.040. As the act of daylighting oil wells involves soil disturbance, monitoring for volatile organic compounds will be required under the R1166 permit/compliance plan. The R1166 permit limits the release of volatiles in soils to 50 parts per million by volume (ppmv) or less, however some volatiles will be released into the ambient atmosphere during these activities, decreasing the residual concentrations previously detected in site soils and soil vapor.

### **MM HAZ-3 Daylight Idle Oil Wells**

Idle wells should be located, daylighted and abandoned in accordance with the State of California Department of Conservation, Geologic Energy Management Division (CalGEM)

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<sup>17</sup> As shown in Figure 7 of the Signal Hill General Plan Safety Element 2016.

requirements and in accordance with the City of Signal Hill's Oil and Gas Code §16.22 and §16.24, and under the R1166 permit/compliance plan requirements.

**MM HAZ-4 Daylight Abandoned Pipelines**

Abandoned pipelines should be located, daylighted and removed in accordance with the Soil Management Plan and R1166 permit/compliance plan.

**MM HAZ-5 Install Methane Mitigation Systems Subslab of Proposed Buildings**

Institutional controls, i.e., a methane mitigation system to be installed subslab of any proposed buildings, pursuant to the City of Signal Hill's Oil and Gas Code §16.24.080 will effectively mitigate risks and hazards due to vapor intrusion to negligible conditions ensuring the site is safe for any future intended use including as a residential property. A redeveloped property precludes exposure to site soils by future residential occupants.

Methane mitigation subslab of proposed buildings is recommended based on the Methane Assessments. The methane mitigation system should consist of a subslab impervious membrane placed in between geotextile or geocloth to protect it from sand above and the 4" thick gravel blanket below in conformance with the City of Signal Hill Oil and Gas Code §16.24.080 and City of Signal Hill Project Development Guide (June 2020). Perforated horizontal vent pipes should be placed in the 4" thick gravel blanket and tied into vertical vent risers (typically cast iron) placed inbetween the interior and exterior walls, less than 100-feet apart, extending a minimum of 3-feet above the roof line and should not terminate less than 100-feet from any opening (City of Signal Hill June 2020).

Although designed to capture and vent methane to the atmosphere, other volatile organic compounds in the subsurface (both in the soil matrix and soil vapor) also will be captured and vented by this system.

**MM HAZ-6 Include Vents in Impervious Pavement if Area is 5,000 Square Feet or Greater and Contiguous to Buildings**

If an impervious surface paving area is 5,000 square feet or greater and contiguous to the proposed buildings, the paving should have vents spaced less than 100-ft apart consisting of four sided concrete boxes with traffic rated grates and 4" thick gravel blanket at the base. The vents should be designed to prevent surface water infiltration.

## 6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

**MM HAZ-1** would require the preparation of a SMP prior to commencement of ground disturbing activities as approved by the SCAQMD would be completed prior to construction activities and would ensure the SMP would provide instructions for appropriate actions in the event discolored or odiferous soils are discovered during grading. **MM HAZ-2** through **MM HAZ-4** would require abandoned oil wells and pipelines and idle oil wells present on the Housing Sites to be located, daylighted, methane gas leak tested and fitted with vent cones and risers. **MM HAZ-5** would require a Methane Mitigation System to be installed below the foundations of future residential buildings on the Housing Sites which would eliminate the exposure pathway of methane and other COCs that remain on-site and would mitigate vapor intrusion ensuring the Housing Sites are safe for future residential uses. Further, **MM HAZ-6** would ensure future residential uses are safe by requiring the paved areas on the Housing Sites greater than 5,000 square feet and contiguous to future residential buildings to be vented with designs to prevent surface water infiltration. Therefore, implementation of **MM HAZ-1** through **MM HAZ-4** would ensure potential impacts to the public or the environment through the routine transport, use or disposal of hazardous materials to a less than significant level. **MM HAZ-5** and **MM HAZ-6** would ensure potential impacts to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials would be less than significant.

### 1. INTRODUCTION

This section evaluates potential impacts concerning land use and planning that could result from the Project, including housing development on the Housing Sites. This section describes the existing environmental and regulatory settings concerning land use and planning. This section also evaluates the potential for the Project to cause significant environmental impact due to a conflict with an existing land use plan or regulation adopted to avoid or mitigate environmental effects. Housing Sites and nearby land uses will be considered in order to comprehensively evaluate the potential effect of the Project.

### 2. ENVIRONMENTAL SETTING

The City of Signal Hill (City) is located in the Southern California Associated Governments (SCAG) region, which is the largest metropolitan planning organization (MPO) in the country, including approximately 19 million people.<sup>1</sup> The region contains six counties: Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County. Today, the region contains 6 million households and 8 million jobs. While the growth trend has slowed in recent years due to a combination of factors, the region's population continues to grow at approximately 0.85 percent annually<sup>2</sup>, or by approximately 161,500 people annually. Population growth is projected to slow, but continued growth through 2045 is expected. This population growth in turn translates into continued growth for the number of households and jobs in the region.

The history of the City has long been tied to oil production since the discovery and completion of the Alamitos No. 1 well by the Shell Oil Company in 1921.<sup>2</sup> The oil field runs over four miles long and one mile wide, mainly located beneath the City of Signal Hill with a portion extending in the City of Long Beach. The development suitability within the City considers the physical restrictions that exist with the previous oil facilities located amongst most of the existing properties as well as policy direction which is used to encourage the protection of the City's views and historic resources.

### Existing Conditions

#### *Signal Hill Setting*

Since the redevelopment of the City in 1974, there has been a focus on economic development through the addition of multiple commercial big box stores as well as several dealerships added to the Signal Hill

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1 SCAG. Connect SoCal- The 2020-2045 RTP/SCS. [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan\\_0.pdf?1606001176](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan_0.pdf?1606001176). March 4, 2021.

2 City of Signal Hill General Plan, Environmental Resources Element, <https://www.cityofsignalhill.org/DocumentCenter/View/310/Environmental-resources-element?bidId=>. Accessed June 2021.

Auto Center.<sup>3</sup> The development of the existing oil field has been a complicated factor due to the fragmented ownership pattern, leading to another focus of the redevelopment plan which is centered around improving land use patterns, housing opportunities, and the quality of architecture and design throughout the City. The existing setting within the City consists of a mix of residential, commercial, and industrial uses with pockets of industrial located near the center and eastern portion of the City and residential and commercial uses found throughout. There are a total of twelve existing parks available to residents as well as the surrounding City of Long Beach park facilities totaling 8.2 park acres per 1,000 residents.<sup>4</sup> The City shares its transportation network and many other public services with the neighboring City of Long Beach. Regional access to the Project area is supported primarily by Interstate 405 (I-405) and the Pacific Coast Highway (PCH). The City's transportation system consists of roads and a variety of public transportation systems, including buses, light rail, and paratransit service, airports, and seaports.<sup>5</sup> Major north-south routes within the City include Cherry and Orange Avenues; major east-west through routes include Spring and Willow Streets and Pacific Coast Highway.

The City can be divided into seven neighborhoods including: North End, Central, West Side, Civic Center, Southeast, Hilltop, and Atlantic Spring. The North End neighborhood consists mainly of medium density residential units with some light industrial uses, commercial general, open space, and public institutional uses. The Central Neighborhood consists of mostly commercial general uses with an equal amount of commercial office and general industrial uses. The West Side neighborhood includes some high density residential and medium density residential uses, commercial industrial, general industrial, and Light Industrial uses. The Civic Center neighborhood consists of a multitude of uses: low density residential, high density residential, public institutional, Town Center, light industrial, commercial office, and open space. The Southeast neighborhood includes a majority low density residential uses, some high density residential, medium density residential, with few open space designations, sparse commercial general near the Pacific Coast Highway, and light industrial, general industrial, and commercial industrial to the east of Hathaway Avenue. The Hilltop neighborhood includes low density residential uses, few open space uses, high density residential, Town Center use, and a small portion of commercial designation near Willow Street. The final neighborhood of Atlantic Spring consists of the following uses: commercial general, commercial industrial, Light Industrial, general industrial, and public institute.

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- 3 City of Signal Hill. General Plan – Land Use Element.  
<https://www.cityofsignalhill.org/DocumentCenter/View/309/circulation-element?bidId=>. Accessed June 2021.
  - 4 Los Angeles Countywide Comprehensive Park & Recreation Needs Assessment, City of Signal Hill,  
<https://documentcloud.adobe.com/spodintegration/index.html?locale=en-us>. Accessed June 2021.
  - 5 City of Signal Hill. General Plan- Circulation Element.  
<https://www.cityofsignalhill.org/DocumentCenter/View/309/circulation-element?bidId=>. Accessed June 2021.



## Existing Land Uses

The City of Signal Hill exists within the City of Long Beach and includes a variety of commercial, industrial, and residential land uses. In 1974, the City focused on redevelopment after two thirds of the 2.2 square miles were identified as in need of improvement due to the existing oilfields.<sup>6</sup> The City focused the majority of its redevelopment on infrastructure improvements and then in the 1980's, focus was shifted towards improving economic development and affordable housing. Within the Land Use Element, the City's goals center around affordable housing development. The City's land use pattern is well established and is not anticipated to change materially over time. The City identified that the majority of development would most likely occur within vacant oil field areas and to a lesser extent in-fill development within established neighborhoods. The constraints of future development within the City surround ongoing oil field operations as well as other physical qualities that limit the extent of residential development. However, the goals and policies with the City's General Plan support the development of additional residential and commercial uses throughout the City focusing on environmental suitability of each use.

Each neighborhood within the City is described below with details about the history and existing uses.

### ***North End***

The North End neighborhood has been a well-established suburb since before the City's incorporation in 1924, when many of the dwellings were relocated to make way for petroleum exploration.<sup>7</sup> The North End neighborhood is located to the north of the I-405 freeway contained by Atlantic Avenue to the west and Walnut Avenue to the east. Due to the proximity of the neighborhood to the highway infrastructure, a sound wall was constructed to alleviate the travelling vehicle noise in 1998. Today, the neighborhood is lined mostly with large shady trees and cottage homes, with relatively large lots. The neighborhood is also home to the Burroughs Elementary School and Reservoir Park. The southern half of Reservoir Park is a five-million-gallon reservoir and pump station. A minimal amount of two-story apartment buildings also exists in the neighborhood on 32<sup>nd</sup> Street near California Avenue.

### ***Atlantic/Spring***

The Atlantic/Spring Neighborhood is located between Atlantic Avenue and California Avenues and the 405-Freeway and E. Willow Street. This neighborhood remained largely undeveloped until the 2000s and still retains a large portion of the remaining vacant land in the City. The availability of undeveloped land is largely a result of ongoing oil production activities from independent oil operators, contaminated soils,

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6 City of Signal Hill General Plan, Land Use Element, <https://www.cityofsignalhill.org/85/General-Plan>. Accessed June 2021.

7 City of Signal Hill General Plan, Land Use Element, <https://www.cityofsignalhill.org/85/General-Plan>. Accessed June 2021.

small lots, and lack of infrastructure. Today, the neighborhood includes commercial retail and restaurants, medical offices, and Light Industrial operations.

### ***Central***

The Central Neighborhood lies south of the I-405 freeway between Temple and California Avenues. Willow Street is the southern boundary of the Central Neighborhood except that the Hathaway Tank Farm and industrial complex between Hathaway and Redondo Avenues is included in the Central Neighborhood. During the oilfield boom years from 1923 to 1965, the Central Neighborhood served as a vast storage yard for the oil field. As oil production declined, the major petroleum companies sold the land and their interests in the Signal Hill oil field and relinquished the surface rights back to property owners. Some storage yards remain in the neighborhood to this day.

Today, the neighborhood consists of primarily small size industrial lots with narrow streets and alleys. Industrial and business buildings dominate the neighborhood and benefit from the location's easy access to several freeways and a nearby airport. The area is rich with commercial services such as auto centers, auto repair shops, banking, fitness center, and trade schools.

### ***West Side***

The West Side Neighborhood is located south of E. Willow Street between Orange Avenue and the abandoned Pacific Electric Railroad right-of-way. Historically, the area includes a mix of older industrial and residential land uses on small size lots with scattered oil field operations. Today, the neighborhood is characterized with mostly rental properties, some of which house more than 150 units. The neighborhood contains more rental properties as compared to other areas of the City. The neighborhood also has a mix of historical buildings, industrial buildings, and storage yards. The average income in this neighborhood is lower than the average income of the rest of the City.

### ***Civic Center***

The Civic Center Neighborhood takes its name from the many public institutions located between Cherry and Walnut Avenues and E. Willow Street and the southerly City boundary along the abandoned Pacific Electric railroad right-of-way. The Civic Center neighborhood includes public service institutions including the City Hall, police station, library, and community center serving the City. Three schools are also located in the neighborhood which are the Signal Hill and Alvarado elementary schools, and the Preparatory Academy junior high school. Aside from public services and schools, the neighborhood contains a mix of older homes, contemporary condominiums, and single-family residential homes.

The retail development of the area has taken a different turn in recent years with the City shifting their focus from retail sales tax generating establishments such as Costco and Home Depot towards more neighborhood shopping venues such as grocery stores, beauty supply shop, coffee house, and restaurants.

### ***Hilltop***

The Hilltop Neighborhood is located on elevated land, as compared to the rest of the City, and enjoys panoramic views of its surrounding landscape. The boundaries of the Hilltop Neighborhood are E. Willow Street on the north, 21st and 19th Streets on the south, Cherry Avenue on the west and Hathaway and Obispo Avenues on the east. Developments in the area include single- and multifamily dwellings, retail amenities at Town Center East with Costco and Home Depot, and telecommunication sites.

Current development in the Hilltop Neighborhood is largely in accordance with the Hilltop Area Specific Plan which includes a mix of single-family detached dwellings and condominium flats. Pedestrian walking trails will connect the neighborhood to parks and other neighborhoods nearby.

### ***Southeast***

The Southeast Neighborhood includes the area south of E. Willow Street, west of Cherry Avenue, north of Pacific 8Coast Highway, and generally east of Redondo Avenue. The neighborhood went through a redevelopment effort from 1989 to 2000, with the replacement of former commercial properties along Pacific Coast Highway with new single-family homes, the removal of obsolete commercial uses, and the building of a neighborhood park. Existing land use in the neighborhood includes single- and multifamily developments, light manufacturing, warehouses, and offices.

## ***Candidate Housing Sites***

As discussed in **Section 2.0 Project Description**, Housing Sites have been chosen which are suitable and available for future residential development in order to meet the regional housing need by income level. A description of each Housing Site is provided below.

### **Walnut Bluff**

Walnut Bluff is located north of Willow Street at 2653 Walnut Avenue, Signal Hill, CA 90755. The site is located in the Central neighborhood of the City and has approximately 2 acres identified for potential residential development. The existing site is vacant aside from four active oil and gas wells (two of which have idle status), four abandoned wells, and limited vegetation. The Walnut Bluff Housing Site is located on mostly vacant land occupied by few buildings and active drilling rigs. North of the Housing Site, located on 27th Street, is the Signal Hill Police Department which is approximately 450 feet away. South of the

Housing Site, adjacent to Willow Street, is mostly residential, high density with some single-family homes located on Gundry Ave. Additionally, there is a vacant parcel that has been disturbed by oil and drilling activities south of the Project site. East of the Housing Site which runs parallel to Walnut Avenue is vacant, open space that is also occupied by more drilling rigs. West of the Housing Site there is a woodworking shop 2known as Interior Workshop and the LA County Office of the Assessor that is approximately 0.2 miles away. It is located parallel to Gundry Avenue north of E Willow Street.

### **Heritage Square**

Heritage Square is located near the City center in the Civic Center neighborhood, northwest of the intersection of Cherry Avenue and Burnett Street. North of the site is Crescent Heights Street and west of the site is Rose Avenue. The area set aside for residential development is approximately 3.4 acres. The existing condition onsite contains a commercial retail use (local grocer). There are eight active oil and gas wells (seven of which have idle status), ten abandoned wells, and limited vegetation. The site also contains pavement and fencing around the perimeter of each individual parcel. The Heritage Square Housing Site is located in an area that has been mostly disturbed by drilling activities. North of the Housing Site are two office buildings including shopping center which is approximately 0.1 miles away. Additionally, a health food store, Mother's Market and Kitchen, and an EVgo Charging Station exist to the north of the site. South of the Housing Site on Burnett Street is a lot of land that is mostly vacant and utilized for drilling activities. To the east is Cherry Avenue which runs parallel to the Housing Site is a Home Depot and Garden Center, which is approximately 0.2 miles away. West of the Housing Site, parallel to Rose Avenue, is another lot of mostly vacant land occupied by a drilling rig and some residential homes.

### **Town Center Northwest**

Town Center Northwest is located northeast of the intersection of Willow Street and Walnut Avenue in the Cent2ral neighborhood. The area set aside for residential development is approximately 7.4 acres. The existing site contains one of seven drill sites in the City housing eleven injection wells (three of which have idle status). There are also approximately fourteen active oil and gas wells (9 of which have idle status) outside of the drill site area, approximately ten abandoned wells, and limited vegetation. The area outside of the fenced drill site to the east is currently used for storage of oil field related equipment. The Town Center Northwest Housing Site is parallel to the Walnut Bluff Housing Site. As mentioned, the site contains one drill site. Gaviota Avenue runs north of the Housing Site. Also north of the Housing Site is Gregg Drilling LLC, a drilling contractor, and Ancon Services, an oil and natural gas company. South of the Housing Site, along Willow Street, is a shopping center with several amenities: grocery store, chain coffee shops, and restaurants. Immediately east of the Housing Site is another shopping center with a dollar store, takeout restaurant and a cellphone store. Along Walnut Avenue, west of the Housing Site, is the Walnut Bluff Housing Site that is mostly vacant space and a construction company.

## Orange Bluff

Orange Bluff is located in the Central neighborhood adjacent to the City boundary south of East 28th Street between Orange Avenue and, extending just south of where East 27th Street dead ends into the property from the east. The area set aside for residential development is approximately 7.1 acres. The existing site is mostly vacant; however the center of the site is developed with a Light Industrial building. There is also an existing industrial kitchen supply store and a spice warehouse on the site. These existing structures would not be within the proposed residential development area and would remain on-site. Scattered about the site are remnants of previous developments including foundations, and paved areas, with limited vegetation. The Orange Bluff Housing Site is near both the Walnut Bluff and the Town Center Northwest Housing Sites. The site is fairly large and extends across several areas of commercial office and general industrial space. North of the Housing Site, along 28th Street, is a glass and mirror shop and light industrial facility. South of the Housing Site, along Willow Street, is Majestic Golf Land, a recreational facility. Gundry Avenue runs along the eastern side of the Housing Site. The northeastern side of the Housing Site has several commercial properties such as an autobody shop, auto parts store, and painters, while the southeastern side has a woodworking shop called Interior Workshop and the LA County Office of the Assessor, a tax assessor. West of the Housing Site, near the intersection of Orange Avenue and Willow Street is the Long Beach Municipal Cemetery. On the northwestern portion, towards 28th Street, is the Willow Springs Park.

## 3. REGULATORY SETTING

### State

#### ***Housing Crisis Act of 2019 (SB 330)***

The Housing Crisis Act (SB 330) was enacted by Governor Newsom in 2019 as a means to combat the State's growing housing crisis. This legislation's goal is to increase California's affordable housing stock by 3.5 million new units by 2025. To streamline residential development, a new preliminary development application process is required which includes a staff-level review of basic information regarding a project such as:

- Site characteristics;
- The planned project;
- Certain environmental concerns;
- Facts related to any potential density bonus;
- Certain coastal zone-specific concerns;
- The number of units to be demolished; and
- The location of recorded public easements.

SB 330 further streamlines housing development by reducing the amount of public meetings or hearings to five or less (e.g., workshops, design review board meetings, planning commission meetings, advisory committee meetings, and city council meetings). A shortened approval time of 90 days instead of 120 days from the time of certification for an EIR is also required to streamline the development approval process.

Local agencies are no longer able to remove or modify land use designations or allowances to inhibit the development of housing, unless the local agency replaces the lost housing potential; therefore, ensuring no net loss in housing availability. Further, local agencies will no longer be able to limit the annual number of housing-focused land use approvals, create caps on the amount of constructed housing units, or limit the population size of their city. Subjective design limitations on parcels where housing is an allowable use is also no longer permissible for projects that are subject to processing per SB 330 (any housing project).

### ***Senate Bill 166 No Net Loss***

SB 166 builds on existing laws and regulations to ensure a local agency meets its allocated housing units for lower and moderate-income households. This bill requires adequate housing development capacities to be available throughout the Housing Element planning period to meet the unmet RHNA needs. SB 166 prevents a local jurisdiction from permitting an identified lower and moderate-income residential housing site for development of another use or for a lower density residential development than identified in the Housing Element. If a site identified for housing development is permitted for another use or developed at a lower density which prevents the local agency from meeting its RHNA for lower and moderate income residential housing allocation numbers, the local agency must identify another site for housing development within 180 days to meet the RHNA allocation for lower and moderate income housing.<sup>8</sup>

## **Regional Plans and Regulations**

### ***SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy***

SCAG is responsible for the designated Regional Transportation Plan (RTP), including its Sustainable Communities Strategy (SCS) component pursuant to SB 375. The 2020-2045 RTP/SCS, also known as Connect SoCal, was adopted by SCAG on September 3, 2020. The 2020–2045 RTP/SCS is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern.

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8 SCAG, 6th Cycle Regional Housing Needs Assessment Estimate, 10/1/2021 – 10/1/2029.  
<http://www.scag.ca.gov/programs/Documents/RHNA/Staff-Recommended-RHNA-Estimated-Allocations030520.pdf>  
accessed March 4, 2021.

Update of the 2020-2045 RTP/SCS reflects changes in economic, policy, and demographic conditions in the region.<sup>9</sup> In the SCAG region, annual growth is slowing down in concert with the national population growth trend. Population growth in the region slowed down from about 0.85 percent in 2020 to about 0.45 percent by 2045. These changes are driven by declines in fertility and affected by high housing costs in the region. The population in the region is also growing older, with a median age of 32.3 in 2000 to 35.8 in 2016. By 2045 the median age is expected to reach 39.7. Net migration to the region has also slowed over the last 30 years.

Applicable goals from the 2020-2045 RTP/SCS include:

- Goal 2:** Improve mobility, accessibility, reliability, and travel safety for people and goods
- Goal 4:** Increase person and goods movement and travel choices within the transportation system
- Goal 6:** Support healthy and equitable communities
- Goal 9:** Encourage development of diverse housing types in areas that are supported by multiple transportation options

## Local

### ***City of Signal Hill General Plan***

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The adopted General Plan is a blueprint for future development and focuses on the long-term goals of the city or county. The City's General Plan includes the following elements: Land Use, Circulation, Environmental Resources, Housing, Noise, and Safety.

### **Land Use Element**

The Land Use Element was adopted in 1989 and has been amended in 2001.<sup>10</sup> The Land Use Element identifies goals and policies and includes a land use map showing the location and intensity of types of uses, such as business, industry, housing, education, public buildings, and open space. The goals and policies applicable to the proposed Project are identified below:

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9 Southern California Association of Governments (SCAG), 2020-2045 Connect SoCal [2020 RTP/SCS] (adopted November 2019).

10 City of Signal Hill General Plan, Land Use Element (2001), <https://www.cityofsignalhill.org/DocumentCenter/View/1649/FinalLandUseElement?bidId=>. Accessed June 2021.

**Goal 1:** Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy adequate to provide future City revenues.

*Policy 1.2:* Provide opportunities for a variety of residential densities and housing styles.

*Policy 1.4:* Provide for density bonuses, which exceed maximum densities specified in the land use plan and classification system, for development projects for low and very-low income or "special need" households in low, medium, and high-density land use classifications.

*Policy 1.5:* The distribution and intensity of land uses shall be consistent with the land use map and descriptions for each of the land use categories in Section VI of the Land Use Element.

**Goal 2:** Ensure that new development is consistent with the City's circulation system, availability of public facilities, existing development constraints, and the City's unique characteristics and natural resources.

*Policy 2.6:* Encourage the development of oil field areas through the removal or relocation of wells and pipelines, or with site plan designs that encourage the joint use of land for oil production and other urban uses while maintaining essential access to petroleum resources.

**Goal 3:** Assure a safe, healthy, and aesthetically pleasing community for residents and businesses.

*Policy 3.3:* Ensure a sensitive transition between commercial or industrial uses and residential uses by means of such techniques as buffering, landscaping, and setbacks.

*Policy 3.4:* Promote mixed-use development and ensure compatible integration of adjacent uses to minimize conflicts.

*Policy 3.5:* Encourage the elimination of nonconforming uses and buildings and limit the reuse of nonconforming buildings to less intensive uses more compatible with the underlying zoning.

*Policy 3.7:* Maintain and enhance the quality of residential neighborhoods.

*Policy 3.13:* Reinforce Signal Hill's image and community identity within the greater Long Beach Metropolitan area.



*Policy 3.16:* Review and revise, as necessary, the City's development standards to improve the quality of new development and protect the public health and safety.

*Policy 3.17:* Promote "smart growth" principles that encourage development that is economically viable, creates a sense of community, and preserves natural resources. Smart growth includes narrower streets, mixed uses, smaller setbacks, open spaces, habitat preserves and parks, infill development and compact commercial centers, and the reuse of brownfields.

**Goal 4:** Ensure that future land use decisions are the result of sound and comprehensive planning.

*Policy 4.1:* Consider all general plan goals and policies, including those in other general plan elements, in evaluating proposed development projects for general plan consistency.

*Policy 4.2:* Maintain consistency between the Land Use Element, the other elements of the general plan, the zoning ordinance, and the Municipal Codes regulations and standards.

*Policy 4.6:* Develop comprehensive local and regional rather than piecemeal planning solutions and promote long-range solutions to land use issues.

## Circulation Element

The Circulation Element was most recently updated in 2009.<sup>11</sup> It establishes guidelines and policy direction for the development and maintenance of a comprehensive transportation system for the City. The future development of the Housing Sites would create additional low income and very low income housing for the City. The Project would be required to adhere to the general goals and policies in order to reduce the effect of increased traffic due to the creation of residential uses in the area.

The Circulation Element requires that new development must preserve and enhance the City's circulation system. The Project would be consistent with this goal by ensuring that necessary circulation system enhancements and expansions occur and development of circulation improvements would occur as necessary to ensure safety. The Project would also minimize the environmental impact of transportation systems by encouraging infill development of vacant lots with multi-family and high density development.

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11 City of Signal Hill General Plan, Circulation Element, <https://www.cityofsignalhill.org/DocumentCenter/View/309/circulation-element?bidId=>. Accessed June 2021.

## Environmental Resources Element

The Environmental Resources Element was adopted in 1986.<sup>12</sup> The Environmental Resources Element combines the open space and conservation elements into one document to address the long-term and comprehensive preservation and conservation of open space. It also details the conservation, development, and use of natural resources such as water, forests, soils, rivers, and mineral deposits.

The Project would be consistent with the Environmental Resources Element by managing the production of economically valuable resources in the City to balance market forces and long-term community values. The Project would revitalize vacant parcels in order to create a more balanced residential environment within the City. Generation of affordable housing opportunities within the City would create more diverse uses that would encourage growth.

## Noise Element

The Noise Element was adopted in 2009 and identifies and assesses noise problems within the community and establishes guidelines to achieve noise-compatible land uses.<sup>13</sup> Noise sensitive uses can include residential, schools, hospitals, libraries, and parks. The goals and policies applicable to the proposed Project are identified below:

**Goal 1:** Protect the health, safety, and welfare of people living and working within the City from adverse noise impacts.

*Policy 1.a:* The City will consider the severity of noise exposure in the community planning process to prevent or minimize noise impacts to existing and proposed land uses.

*Policy 1.c:* Noise-sensitive land uses, including residential, transient lodging, hospitals and long-term care facilities, educational facilities, libraries, churches, and places of public assembly will not be located near major stationary noise sources

## Safety Element

The Safety Element was adopted by the City in 1986 and updated most recently in 2016.<sup>14</sup> The Safety Element focuses on identifying natural or human-made hazards in the City and specifies policies and

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12 City of Signal Hill General Plan, Environmental Resources Element, <https://www.cityofsignalhill.org/DocumentCenter/View/310/Environmental-resources-element?bidId=>. Accessed June 2021.

13 City of Signal Hill General Plan, Noise Element, <https://www.cityofsignalhill.org/DocumentCenter/View/313/Noise-element?bidId=>. Accessed June 2021.

14 City of Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/DocumentCenter/View/2557/Safety-Element-2016?bidId=>. Accessed June 2021.

programs to mitigate hazards to the public. See **Section 4.6: Hazards** for a consistency analysis of the proposed Project and the Safety Element.

### ***General Plan Designations***

The City's General Plan Land Use Map displays the general boundaries and patterns of land uses within the City. This map is a general guide to the amount of land and the boundaries of each land use in order for planning development among the most appropriate and consistent land use types within an area. Each land use designation is determined based on the City's specific development requirements and the physical boundaries given the City's unique characteristics.

#### **Low Density Residential (Less than 10 dwelling units per acre)**

The Low-Density Residential category allows single-family detached dwellings on individual lots, and in the Hilltop Area attached dwellings containing two to four units. Developed areas of the City that are designated as Low-Density Residential include California Crown located at Temple Avenue and 20th Street and portions of the Southeast Neighborhood located south of 21st Street.

#### **Medium Density Residential (10 - 20 dwelling units per acre)**

The Medium-Residential Density land use category includes most land in the North End and West Side Neighborhoods that are largely developed with a mix of lower density single family detached dwellings and medium density multi-family development. Vacant Medium-Residential Density land is found scattered among existing developed parcels.

#### **High Density Residential (20 - 35 dwellings per acre)**

The High-Density Residential land use category provides opportunities for multi-family development including multi-story condominiums and apartments. The High-Density Residential areas are located in the Civic Center, West Side and Hilltop Neighborhoods where there are existing high-density residential developments.

#### **Town Center**

The Town Center land use category is the commercial core of the City generally located at the intersection of Cherry Avenue and Willow Street. The Town Center category provides opportunity for large-scale retail stores, offices, entertainment and dining as well as neighborhood shopping centers. New development in the Town Center is guided by existing Town Center East and the Commercial Corridor Specific Plans and by the Willow/Spring/Cherry Landscape Overlay District. These plans and design guidelines promote orderly development, compatible land uses and cohesive design primarily through the design review procedure including architecture, landscape and sign plan review.

## **Commercial General**

The Commercial General land use category is characterized by a variety of miscellaneous retail and commercial service land uses including retail sales, automotive repair, restaurants, offices, day care, nursery, technical schools and convenience stores. The Commercial General areas are located along major arterial highways including Wardlow Road (where the City of Long Beach controls the frontage, zoning and business licensing), Willow Street between Atlantic and California Avenues, Spring Street between Atlantic and California Avenues, and the Target shopping center located in the North End neighborhood at 33rd Street and California Avenue.

## **Commercial Office**

The Commercial Office land use category provides for the development of professional offices and related supportive retail and service commercial uses. Offices permitted by this category include finance, insurance, architecture, engineering, real estate, business support services and medical or dental. New development in the Atlantic Avenue Commercial Office area should complement existing large scale medical offices. The Commercial Office area located on Walnut Avenue south of Hill Street may provide opportunity for the enlargement of the adjacent existing office complex.

## **Commercial Industrial**

The Commercial Industrial category is intended to accommodate a combination of retail and light industrial uses. The designation applies to areas located along Willow Street and Cherry Avenue. The Commercial Industrial designation allows for mixed-use types of businesses such as manufacturing with retail sales of the manufactured product or warehousing with limited retail sales. Because the typical buildings in the Commercial Industrial category are designed and parked for light industrial use the appropriate uses should not overburden limited parking in the area, but should complement the retail business along Willow Street and Cherry Avenue. Likewise, heavy industrial uses are not encouraged in the Commercial Industrial category.

## **Light Industrial**

The Light Industrial land use category is designed to accommodate a variety of light industrial uses which are nonpolluting, and which can coexist with surrounding commercial and residential uses. Development in the Light Industrial areas should complement the existing modern industrial park development with landscaped setbacks orderly parking lots, and high-quality design buildings. When light industrial development abuts commercial or residential development special buffering or wall treatments should be incorporated into the design to minimize incompatibilities.

## **General Industrial**

The General Industrial land use category provides opportunities for heavy industrial uses that can coexist with adjacent light industrial and commercial development. Conditionally permitted uses shall be required to demonstrate that they can operate safely and compatibly with surrounding existing and planned land uses and that they can mitigate environmental impacts. Certain heavy industrial uses are not permitted. The evaluation of conditionally permitted land uses in the General Industrial area shall consider how well the proposal addresses the aesthetic impacts on the surrounding community by incorporating landscaping, high quality architecture and setbacks into the site design.

## **Open Space**

The Open Space category includes public parks, trails and privately owned trails/enhanced walkways when the general public has access to the use of the trail/enhanced walkway recorded as a pedestrian easement.

## **Public Institutional**

The Public Institutional land use category is for public school sites; institutions, utility facilities and public buildings formerly included in the open space land use category. There are four existing school sites within the City far more than necessary to serve the neighborhood populations in vicinity of the schools. New Public Institutional development should reflect the public interest in high quality durable architecture and landscaping to complement existing surrounding development.

## ***City of Signal Hill Municipal Code***

Municipal codes refer to a collection of laws passed by a local governing body such as a city. These laws are enforced locally in addition to state law and federal law and cannot conflict with existing state laws and federal laws. The City of Signal Hill has a collection of laws and ordinances enacted on a local level which can be found within the Signal Hill Municipal Code. The Signal Hill Municipal Code includes topics pertaining to real estate development including Title 15-Buildings and Construction and Title 20-Zoning. Each Specific Plan District is set forth in the Municipal Code and contains guidelines for development within the individual area.

## ***Zoning Code***

The zoning code coordinates all existing zoning regulations and provisions into one comprehensive zoning plan in order to designate, regulate, and control the location and use of buildings, structures and land for residence, commerce, trade and industry or other purposes. The zoning code regulates the dimension, number of stores, and other related components of a building, structure, or land to ensure the most

appropriate use of land and to protect and promote the health, safety, and general welfare of the public. The City has six commercial zoning codes, four residential zoning codes, and the Open Space and Commercial Residential codes. The zoning codes are supplemented by a number of specific plans and districts.

### **Residential Zoning**

Residential zoning primarily serving residential uses in the City are divided into four levels- Residential Low Density (RL), Residential Low/Medium-1 (RLM-1), Residential Low/Medium-2 (RLM-2), and Residential High Density (RH). The purpose of each type of zoning are described below.

***Residential Low Density (RL):*** This zone is intended to provide for the orderly development and maintenance of low-density neighborhoods in accordance with the general plan. Permitted housing types include single-family detached dwellings and duplexes.

***Residential Low/Medium-1 (RLM-1):*** This zone is intended to provide for the orderly development of low/medium density residential neighborhoods exclusively limited to small-lot subdivisions of single-family detached dwellings.

***Residential Low/Medium-2 (RLM-2):*** This zone is intended to provide for the orderly development and maintenance of low/medium residential neighborhoods which include both single-family dwellings and duplexes.

***Residential High Density (RH):*** This zone is intended to provide for the orderly development and maintenance of high-density residential neighborhoods in areas without physical constraints to such development and where infrastructure is adequate to support such development.

### **Commercial Zoning**

Commercial zoning primarily serves commercial as well as industrial and residential zoning. There are six levels of commercial zoning – Commercial Residential, Commercial Office, Commercial Town Center, Commercial General, Commercial Industrial.

***Commercial Residential (CR):*** This zone is intended to provide for limited small scale commercial and office uses along, or in conjunction with, medium density residential uses. Such mixed uses on a single parcel shall be compatible and where possible, mutually supportive.

***Commercial Office (CO):*** This zone is intended to provide for the orderly development and maintenance of professional offices and limited commercial uses. Other permitted uses will include commercial offices, medical offices and hospitals.

**Commercial Town Center (CTC):** This zone is intended to serve as a concentrated commercial core for the city. Retail outlets typical of community shopping centers or districts along with general retail uses and professional offices will be among the uses permitted in this district.

**Commercial General (CG):** This zone is intended to provide for a wide variety of service and retail uses, many of which are highway-oriented.

**Commercial Industrial (CI):** This zone is intended to provide for a wide variety of commercial uses and limited compatible light industrial uses. Commercial or industrial uses which might create offensive levels of noise, air pollution, glare, radioactivity or other nuisances shall be prohibited from this district.

### **Industrial Zoning**

Industrial zoning serves industrial zoning areas and includes two level – Light Industrial and General Industrial.

**Light Industrial (LI):** This zone is designed to accommodate a variety of light industrial uses which are nonpolluting and which can coexist with surrounding land uses. In addition, limited complimentary commercial uses shall be permitted.

**General Industrial (GI):** This zone is intended to provide for the development of a variety of general industrial and service uses which do not generate obnoxious or offensive impacts which might affect persons residing or conducting business in the city.

### **Specific Plan and Districts**

#### **Special Purpose Housing Specific Plan**

The Special Purpose Housing Specific Plan (SP-7) includes six areas within the City each with their own general guidelines, concepts, regulations and conditions to provide for the development of housing for persons with physical disabilities. The project is intended to expand the housing opportunities available to persons with disabilities, low and very low income households, and senior housing. Some goals and objectives for this plan include the following:

1. Assure that a specialized population, persons with disabilities, has access to adequate and affordable housing opportunities;
2. Support development of dwelling units expressly designed for the special needs of disabled persons;
3. Assure that low-income households have access to adequate and affordable housing opportunities;
4. Assure that senior and family households have access to adequate and affordable housing opportunities;

5. Encourage the development of privately sponsored housing developments intended to be occupied by special needs populations;
6. Apply design standards which result in the highest quality development and achieve streetscapes with pedestrian scale and ambiance consistent with Signal Hill's small town character;
7. Provide architectural diversity and avoid uniformity of appearance; and
8. Enhance aesthetic considerations and minimize view impacts by maintaining finished grades at or below existing grades as identified on the Official 1960 Topographic Map.

### **Town Center West Specific Plan District**

The Town Center West Specific Plan District (SP-3) establishes more detailed development proposals prepared by landowners, developers and general agencies. The SP-3 provides for integrated commercial development consistent with general plan objectives, policies, and programs. Policies include criteria for pay phones and vending machines within the district, hardscape and setbacks that are limited to driveways and walkways, and the prohibited use of commercial marijuana uses.

### **Heritage Square Specific Plan**

The Land Use Element in the City's General Plan proposed changes in the 2001 update for the development of the Heritage Square Central Business District. This designation would include a mixed-use intensive commercial and residential specific plan added to the Commercial Town Center area located between 25<sup>th</sup> and Creston Streets and Rose and Cherry Avenues. This proposed district would be combined with the Central Business District designation allowing for the development of high intensity mixed-use space which includes retail shops, entertainment, dining, fitness center as well as high density residential development. The Heritage Square Specific Plan (SP-23) would be developed using the proposed designation in the Land Use Element and would accommodate for the Heritage Square Housing Site located near the City center in the Civic Center neighborhood, northwest of the intersection of Cherry Avenue and E. Burnett Street.

### ***Los Angeles County Airport Land Use Plan***

California State Law requires the establishment of an Airport Land Use Commission (ALUC) with the purpose of planning for areas within the vicinity of public use airports. In Los Angeles County, the Regional Planning Commission has the responsibility for acting as the ALUC and the subsequent requirements of that agency. The Los Angeles County Airport Land Use Plan (ALUP) is required by State law through the ALUC in order to protect the public, health, safety, and welfare of the surrounding areas. The Long Beach Municipal Airport (LGB) is within Los Angeles County and does not provide an individual ALUP by the City; thus, it is included in the Los Angeles County ALUP.



It is the focus of the Los Angeles County ALUP to provide for the orderly expansion of the County's public use airports and the area surrounding them. It is also intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. The ALUC does not have jurisdiction over airport operations or establishing uses within the airport vicinity, but they complement the planning responsibilities of the cities and other affected agencies. The ALUC has the responsibility to set uniform policies and standards to prohibit development of incompatible uses. However, it is the responsibility of planning commission to specify which compatible uses are appropriate within their individual jurisdictions. The LGB is owned and operated by the City of Long Beach and occupies approximately 1,166 acres just north of Interstate 405 (I-405) freeway. The City of Signal Hill is not within the influence area of the LGB. As such, the Project is not within the influence of the Los Angeles County ALUP and is not required to be consistent with the ALUP guidelines.

## 4. ENVIRONMENTAL IMPACTS

### *Thresholds of Significance*

**Threshold IV. LU-1: Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

### *Methodology*

This analysis considers the CEQA Guidelines Appendix G thresholds, as described above, in determining whether the project, including future housing development facilitated by the Project, would result in impacts concerning land use and planning. The evaluation of potential land use and planning impacts is based on review of documents pertaining to the existing and candidate sites associated with the 2021-2029 Housing Element Update. The evaluation was based on a review of the existing policies and regulations to determine the consistency of the Project with existing applicable policies and regulations. These policies and regulations include those within SCAG 2020-2045 RTP/SCS, the City of Signal Hill General Plan, the Special Purpose Housing Specific Plan, the Town Center West Specific Plan District, and the Heritage Square Specific Plan.

### **Land Use Designation and Zoning Update**

The existing zoning and land use designation of the identified Housing Sites are discussed below.

### *Walnut Bluff*

The existing General Plan designation for the Housing Site is Commercial Industrial (3.4). The land uses designated to the north of the Project site are General Industrial (4.2) and Public Institutional (PI). To the

east is designated as Town Center (3.1) and the west is designated as General Industrial. To the south of the Site and Willow Street is designated Commercial Industrial, Town Center, and High Density Residential (1.3). The existing zoning for the site is Commercial Industrial (CI). The rectangular site borders other Commercial Industrial uses to the west and General Industrial (GI) development to the east and north. South of the Project site and Walnut Avenue is high density residential uses a2s well as the Villagio Specific Plan (SP-16) area. East of the Project site and Walnut Street is zoned for the Commercial Corridor Specific Plan (SP-6) and General Industrial.

Designation of the site to accommodate housing would require a General Plan amendment to Very High Density Residential (35-45 dwelling units per acre) and a zone change to a Special Purpose Housing (SP-7) Specific Plan. This is the standard density and zoning used by the City for affordable housing projects.

### ***Heritage Square***

The General Plan designation is Town Center and Low Density Residential. To the north and east of the Project site lies additional Town Center designated uses. The south and west is designated as Low Density Residential with some Open Space (OS) use to the south. The existing zoning for the site is Commercial Town Center (CTC) and Crescent Heights Historic District (SP-11) Specific Plan. The Crescent Heights Historic District residential Specific Plan is directly adjacent to the west and incorporates a portion of the Project site. The north is zoned as Commercial Town Center and Commercial Corridor Specific Plan (SP-6). South of the Project site is zoned for residential low-medium.

The Land Use Element of the General Plan calls for the area to be re-designated and established as a Central Business District (CBD). Designation of the site to accommodate housing would also require a zoning ordinance amendment to the Heritage Square (SP-23) Specific Plan to allow a mixed-use commercial and residential project and a General Plan amendment to CBD.

### ***Town Center Northwest***

The General Plan designation for the Housing Site is Town Center. North of the site is designated as General Industrial. The east and south are designated as Town Center with some High Density Residential designation to the south. West of the Project site is designated as Commercial Industrial. The existing zoning for the site is Commercial Corridor Specific Plan (SP-6). South and east of the site are developed commercial retail centers named Town Center West and Town Center North zoned as SP-6 to the south and CTC to the east. To the north of the site is zoned as general industrial use and a portion of the Auto Center Specific Plan (SP-4) . To the west of the Project site is 2zoned as commercial industrial use.

Designation of the site to accommodate housing would require a General Plan amendment to CBD and a zoning ordinance amendment to a Town Center Northwest (SP-21) Specific Plan to allow a mixed-use commercial and residential project. 2

### ***Orange Bluff***

The General Plan designation is Commercial Industrial and General Industrial. To the north and west of the site is designated General Industrial East of the site is designated Commercial Industrial, General Industrial, and a small portion is designated as Public Institutional. To the south is designated as Commercial Industrial. The existing zoning for the site is Commercial Industrial (CI) and General Industrial (GI). Development north and east of the site are mostly commercial office and general industrial sites, with a few intermittent vacant sites. Zoning to the north continues the General Industrial uses and to the south past Willow Street lies Commercial Industrial zoning. To the east of the Project site is General Industrial zoning, Commercial Industrial, as well as Public Institutional (PI).

The existing zoning for the site is General Industrial (GI). The General Plan designation is General Industrial. Designation of the site to accommodate housing would require a General Plan Amendment to Very High Density Residential designation and a zoning ordinance amendment to rezone the site to the Special Purpose Housing (SP-7) Specific Plan designation.

### ***Environmental Impacts***

**Threshold IV. LU-1: Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

The Housing Element is one of the State-mandated elements a City is required to prepare as part of its General Plan. Enacted by law in 1969, the Housing Element identifies a City's housing conditions and needs using the Regional Housing Needs Assessment (RHNA) allocation provided by the regional Metropolitan Planning Organizations (MPOs), in the Project's case would be the Southern California Association of Governments (SCAG). The Housing Element then establishes the goals, objectives, policies and programs that serves as the foundation for the City's housing strategy to achieve specific housing goals and improve local housing conditions. The City is updating the Housing Element to address housing needs for the October 2021 to October 2029 Planning Period. The SCAG RHNA allocation for the City identified a housing need of 517 housing units with approximately 45 percent of the 517 units needed for very low- and low-income households. The RHNA allocation for Signal Hill includes 161 very low-income units, 78 low-income units, 90 moderate-income units, and 188 above moderate-income

units.<sup>15</sup> The proposed Project would accommodate for 339 above moderate units; 90 very low and low-income units; and 295 very low, low, and moderate-income units. A total of 724 units are proposed with the implementation of the Project.

This analysis evaluates the adoption of the 2021-2029 Housing Element Update (Project) and the four Housing Sites that have been identified for future housing development to meet the City's RHNA allocation. Future housing developments would be subject to the entitlement process requirements and City approval. Development of identified Housing Sites would be required to comply with applicable federal, State, and local laws and local policies and regulations consistent with the procedures applicable to new developments. This section focuses on the Housing Sites' consistency with existing land use plans and policies. The following plans have been reviewed for consistency with the 2021-2029 Housing Element Update adoption and the anticipated development of the four Housing Sites.

### **SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy**

The 2020-2045 RTP/SCS provides goals and policies consistent with the SCAG planning vision for regional growth and a guide to collaboration with local governments in order to increase the mobility and sustainability of the area. The update of the 2020-2045 RTP/SCS reflects the changes in economic, policy, and demographic conditions in the region. The overarching goals of this plan address four core categories: economy, mobility, environment, and health/complete communities. The proposed Project would further the objectives of the plan by increasing the amount of available affordable housing within the City, which has been designated a High Quality Transit Area (HQTAs).<sup>16</sup>

The 2020-2045 RTP/SCS identifies strategies and investments to support expanded housing choices for all income levels in areas with a range of transportation choices. Conclusions within the document stated that a comprehensive approach is needed in order to identify housing opportunities within Priority Growth Areas (PGAs) such as job centers, Transit Priority Areas (TPAs) found within half a mile of a major transit station, and High Quality Transit Areas (HQTAs) which include generally walkable transit oriented areas within one half-mile or a 15 minute walk of a well serviced transit stop.<sup>17</sup> Additionally, under Assembly Bill 101 (AB 101) (2019) legislation, SCAG is eligible for approximately \$47 million from the California Department of Housing and Community Development (HCD). These funds will be used to develop a Regional Housing Strategy Framework and provide planning resources, grants and services to

15 SCAG, 6th Cycle Final Regional Housing Needs Assessment Plan. <https://scag.ca.gov/sites/main/files/file-attachments/6th-cycle-rhna-final-allocation-plan.pdf?1616462966> accessed May 2021.

16 SCAG, Data Map Book for the City of Signal Hill, Major Transit Stops and High Quality Transit Corridors, <https://scag.ca.gov/sites/main/files/file-attachments/signalhill.pdf?1604903063>. Accessed June 2021.

17 SCAG, 2020-2045 RTP/SCS, Ch. 6, pg. 153.

jurisdictions to implement their 6th cycle RHNA allocation, which is supportive of Connect SoCal goals and policies.

According to the 2020-2045 RTP/SCS, the Project would be consistent with the Regional Housing Strategy Framework which places an emphasis on affordable infill housing development within transit-oriented neighborhoods. The Housing Sites are all located within High Quality Transit Areas (HQTAs) according to SCAG which is considered a generally walkable transit village or corridor and is within one half-mile of a well-served transit stop or a transit corridor within 15-minute or less service frequency during peak hours. The Housing Sites are served by existing Long Beach Transit (LBT) bus lines along Orange Avenue and E. 2Willow Street. Moreover, the LA Metro Willow Street station is within the vicinity of the Housing Sites. With the implementation of the proposed Project, a total of 385 very low, low, and moderate units would be created within the HQTA as well as an additional 339 above moderate units. The SCAG RHNA allocation for the City identified 329 very low, low, and moderate units with 188 above moderate income units. The proposed Project would sufficiently allocate the SCAG RHNA identified number of units for each affordability level as well as additional units and would be consistent with the goals of the 2020-2045 RTP/SCS.

**Table 4.7-1: SCAG 2020-2045 RTP/SCS Analysis** provides a consistency analysis of the proposed Project as compared to applicable goals and policies contained in various chapters of the plan. The analysis contained in the table demonstrates that the proposed Project would generally be consistent with the advisory and voluntary RTP/SCS Goals.

<b>Table 4.7-1</b> <b>SCAG 2020-2045 RTP/SCS Analysis</b>	
<b>Goals, Policies, and Strategies</b>	<b>Project Consistency</b>
<b>Goal 2:</b> Improve mobility, accessibility, reliability, and travel safety for people and goods	<b>Consistent.</b> Future housing development facilitated by the Project would be consistent with the transportation goals for people and goods. All considered Housing Sites are located within HQTAs within the City.
<b>Goal 4:</b> Increase person and goods movement and travel choices within the transportation system	<b>Consistent.</b> The proposed Project would allow for more people to be located near transportation areas and create enhanced transportation availability.
<b>Goal 6:</b> Support healthy and equitable communities	<b>Consistent.</b> Future housing development facilitated by the Project would increase the availability of housing near transportation areas and allow for increased employment in the vicinity of these sites.
<b>Goal 9:</b> Encourage development of diverse housing types in areas that are supported by multiple transportation options	<b>Consistent.</b> The future housing facilitated by the Project would be required to increase the mix of housing types within the vicinity of the Housing Sites.

## City of Signal Hill General Plan

### Land Use Element

The General Plan policies focus largely on the continuation of developing the character of each community and neighborhood within the City and protecting the quality of the physical environment. A main objective of the Housing Element is to meet the City's housing needs, including accommodating a variety of housing types and densities. Implementation of the Housing Element and development of new housing in the City would, for the most part, be in or adjacent to urbanized areas and are vacant for the most part. **Table 4.7-2: Project Consistency with General Plan Land Use Element** outlines the consistency of the proposed Project with the Land Use Element goals and policies. Additionally, the proposed amendments to the General Plan would be consistent with the intent of these existing goals and policies.

While no specific development projects are proposed at this time, the Project would aim to designate the four Housing Sites as potential future development areas to provide housing to very low, low, moderate, and above moderate affordability levels. Current designation of the Housing Sites would need to be amended in order to support future housing development and become consistent with the City's General Plan and zoning code. The Walnut Bluff Site would require a General Plan amendment to Very High Density Residential (35-45 dwelling units per acre) and a zone change to a Special Purpose Housing (SP-7) Specific Plan. The Heritage Square Site re-designation calls for the area to be designated and established as a Central Business District (CBD) and would also require a zoning ordinance amendment to the Heritage Square (SP-23) Specific Plan. Town Center Northwest Site would require a General Plan amendment to CBD and a zoning ordinance amendment to a Town Center Northwest Specific Plan (SP-21) to allow a mixed-use commercial and residential project. Finally, the Orange Bluff Site would require a General Plan Amendment to Very High Density Residential designation and a zoning ordinance amendment to rezone the site to the Special Purpose Housing Specific Plan (SP-7) designation. For the Walnut Bluff and Orange Bluff Sites, a change in land use designation to Very High Density Residential would be consistent with the City's standard density used for affordable housing projects. The Heritage Square Site and the Town Center Northwest Site would be re-designated to CBD. The Commercial Business District was identified in the City's Land Use Element stemming from a need for new high-intensity commercial environment, including diverse and intensely developed pedestrian friendly mixed-use facilities. This designation would include retail, restaurants, community facilities, and residential dwellings within mixed-use structures. The Housing Sites would be consistent with the goals for this designation. Additionally, the General Plan designation map would be amended to support the adopted designation changes for each of the Housing Sites.

Anticipated development of the Housing Sites would be consistent with the General Plan, including policies and programs adopted to address environmental impacts, after the proposed amendments to the General Plan, designation map, and the zoning code. The Project would not remove or modify any policies or measures from the General Plan that are intended for environmental protection and would not conflict with any General Plan policies or measures that are intended for environmental protection. The four Housing Sites identified within the City would require General Plan amendments in order for future development to occur. The General Plan Designation Amendments would meet the objectives outlined within the Land Use Element to establish more residential uses and also meet the philosophy, character, and quality of the existing land uses.

**Table 4.7-2**  
**Project Consistency with General Plan Land Use Element**

<b>Goals and Policies</b>	<b>Project Consistency</b>
<b>Goal 1</b> Manage growth to achieve a well-balanced land use pattern that accommodates existing and future needs for housing, commercial and industrial land, open space, and community facilities and services, while maintaining a healthy, diversified economy adequate to provide future City revenues.	<b>Consistent.</b> The proposed Project would ensure that adequate housing is available within the City to provide for the identified housing deficit and for future housing needs.
<b>Policy 1.2:</b> Provide opportunities for a variety of residential densities and housing styles.	<b>Consistent.</b> Future development of the Housing Sites would apply a variety of housing types and residential densities.
<b>Policy 1.4:</b> Provide for density bonuses, which exceed maximum densities specified in the land use plan and classification system, for development projects for low and very-low income or "special need" households in low, medium, and high-density land use classifications.	<b>Consistent.</b> General Plan amendments proposed for the Housing Sites would include increased density to provide for low-income and very low-income affordability.
<b>Policy 1.5:</b> The distribution and intensity of land uses shall be consistent with the land use map and descriptions for each of the land use categories in Section VI of the Land Use Element.	<b>Consistent.</b> Amendments shall be made for current Housing Sites in order to appropriately designate the sites within the existing land use map.
<b>Goal 2:</b> Ensure that new development is consistent with the City's circulation system, availability of public facilities, existing development constraints, and the City's unique characteristics and natural resources.	<b>Consistent.</b> The future development of the Housing Sites would be assessed individually for circulation design so as to conform to existing traffic patterns.
<b>Policy 2.6:</b> Encourage the development of oil field areas through the removal or relocation of wells and pipelines, or with site plan designs that encourage the joint use of land for oil production and other urban uses while maintaining essential access to petroleum resources.	<b>Consistent.</b> The Housing Sites are located on previous oil drilling areas within the City and would establish residential uses in these areas that are consistent with existing regulations providing for safe living conditions.
<b>Goal 3:</b> Assure a safe, healthy, and aesthetically pleasing community for residents and businesses.	<b>Consistent.</b> Future development of the Housing Sites would add residential uses to areas previously lacking this use and establish enhanced neighborhoods within these areas.

Goals and Policies	Project Consistency
<b>Policy 3.3:</b> Ensure a sensitive transition between commercial or industrial uses and residential uses by means of such techniques as buffering, landscaping, and setbacks.	<b>Consistent.</b> All area specific requirements for development would be adhered to with the future development of the Housing Sites among commercial and industrial uses.
<b>Policy 3.4:</b> Promote mixed-use development and ensure compatible integration of adjacent uses to minimize conflicts.	<b>Consistent.</b> The proposed Project would allow for the creation of housing including mixed-use areas within walking distance which would support the development of those areas.
<b>Policy 3.5:</b> Encourage the elimination of nonconforming uses and buildings and limit the reuse of nonconforming buildings to less intensive uses more compatible with the underlying zoning.	<b>Consistent.</b> The Housing Sites would be integrated into the existing communities to create a diverse blend of uses which would be compatible with each other.
<b>Policy 3.7:</b> Maintain and enhance the quality of residential neighborhoods.	<b>Consistent.</b> Future development of the Housing Sites would enforce the existing characteristics of each neighborhood so as to enhance the quality.
<b>Policy 3.13:</b> Reinforce Signal Hill's image and community identity within the greater Long Beach Metropolitan area.	<b>Consistent.</b> The development of the Housing Sites would encourage growth within the City and enhance the identity of the City through rehabilitation of vacant land.
<b>Policy 3.16:</b> Review and revise, as necessary, the City's development standards to improve the quality of new development and protect the public health and safety.	<b>Consistent.</b> Amendments would be made to allow the Housing Sites for future development and to enforce quality housing guidelines in these areas.
<b>Policy 3.17:</b> Promote "smart growth" principles that encourage development that is economically viable, creates a sense of community, and preserves natural resources. Smart growth includes narrower streets, mixed uses, smaller setbacks, open spaces, habitat preserves and parks, infill development and compact commercial centers, and the reuse of brownfields.	<b>Consistent.</b> Future development of the Housing Sites would encourage development that is economically viable through the increase in housing opportunities and enhancement of currently vacant sites which would increase the number of people contributing to the local economy.
<b>Goal 4:</b> Ensure that future land use decisions are the result of sound and comprehensive planning.	<b>Consistent.</b> The proposed Project would encourage future housing development and would create land use patterns consistent with City goals for achieving greater housing opportunities.
<b>Policy 4.1:</b> Consider all general plan goals and policies, including those in other general plan elements, in evaluating proposed development projects for general plan consistency.	<b>Consistent.</b> The proposed Project would be assessed for consistency with all general plan goals and policies.
<b>Policy 4.2:</b> Maintain consistency between the Land Use Element, the other elements of the general plan, the zoning ordinance, and the Municipal Codes regulations and standards.	<b>Consistent.</b> The proposed Project would be amended to maintain consistency with existing goals and land use plans and would be consistent with other plans and policies.
<b>Policy 4.6:</b> Develop comprehensive local and regional rather than piecemeal planning solutions and promote long-range solutions to land use issues.	<b>Consistent.</b> This Project would create a long-term plan for future development of the Housing Sites.



## Noise Element

The Noise Element provides goals and policies intended to limit the community's exposure to excessive noise levels. The predominate noise source in the vicinity of the Project area is vehicular traffic. Existing noise sensitive uses around the Walnut Bluff, Town Center Northwest, and Orange Bluff sites include Willow Springs Park, Long Beach Municipal Cemetery, and churches. Noise sensitive uses near Heritage Square include residential homes in close proximity. Future development of the Housing Sites would require the use of heavy equipment (e.g., bulldozers, backhoes, cranes, loaders, etc.), which would generate noise on a temporary, short-term basis. Oil drilling facilities exist on each of the four Housing Sites and would need to be removed prior to the development of the sites. In the event construction activities were to occur concurrently at multiple Housing Sites in close proximity, impacts to nearby sensitive receptors can increase to a level where the impacts to surrounding sensitive receptors would be potentially significant.

Construction noise associated with future residential land uses and associated infrastructure development as a result of the Project would be temporary in nature and would vary depending on the characteristics of construction activities being performed. The proposed Project includes existing Housing Sites and future development of those Sites based on the approval of the Project. Noise generated during construction of buildings and long-term Project related noise would be regulated by the City's Noise Ordinance and other related policies. As for Project area, the Orange Bluff, Walnut Bluff, and Town Center Northwest Sites are all located within the vicinity of some industrial uses. However, the Noise Element does not identify commercial and industrial uses as a citywide noise problem, except for some isolated conflicts. Additionally, the Noise Ordinance, Zoning Ordinance, and other sections within the Municipal Code provide standards that limit noise production from these uses, such as hours of operation.

The future development of the Sites would not create substantial noise, which might conflict with existing policies in the City's Noise Element. Each Site would be assessed prior to development to ensure that consistency with surrounding uses can be achieved and protect sensitive receptors within the residential dwellings. As such, the uses within the vicinity of the Project area would be consistent with the proposed future development of residential uses. Policies within the Noise Element proposed to protect sensitive receptors and the health and safety of the public through consistent land uses would be applied to the Project, as shown in **Table 4.7-3: Project Consistency with Noise Element**.

**Table 4.7-3**  
**Project Consistency with Noise Element**

<b>Goals and Policies</b>	<b>Consistency</b>
<b>Goal 1:</b> Protect the health, safety, and welfare of people living and working within the City from adverse noise impacts.	<b>Consistent.</b> Each Housing Site would be assessed prior to development to ensure safety and consistency for sensitive receptors and surrounding uses.
<b>Policy 1.a:</b> The City will consider the severity of noise exposure in the community planning process to prevent or minimize noise impacts to existing and proposed land uses.	<b>Consistent.</b> The Housing Sites would each include residential uses which are considered sensitive and would require any noise impacts to be assessed and minimized if necessary.
<b>Policy 1.c:</b> Noise-sensitive land uses, including residential, transient lodging, hospitals and long-term care facilities, educational facilities, libraries, churches, and places of public assembly will not be located near major stationary noise sources.	<b>Consistent.</b> Each Housing Site would be individually evaluated to determine if impacts from surrounding noise sources require mitigation.

### **City of Signal Hill Municipal Code and Zoning Code**

The Signal Hill Municipal Code carries out the policies of the City's General Plan by classifying and regulating the uses and development of land and structures consistent with the General Plan. The Zoning Code is adopted to encourage, classify, designate, regulate, and restrict the location of buildings and a variety of uses within the City to promote public health, safety and general welfare.<sup>18</sup> The Housing Sites would be reviewed prior to any construction for consistency with the City's development standards set forth in the Municipal Code and Design Guidelines as part of the design review process. The Specific Plan Districts are set forth in the Municipal Code zoning section and contain guidelines for development within the individual area. With each Project subject to the individual Specific Plan designation upon rezoning, the Sites would be consistent with the Municipal Code and Zoning Code policies and guidelines.

### **Special Purpose Housing Specific Plan**

The Special Purpose Housing Specific Plan (SP-7) includes six areas within the City each with their own general guidelines for development. The use classification of the SP-7 includes various residential designations including supplemental amenities to support those uses such as parking designations, laundry facilities, and community facilities. With the implementation of the proposed Project, two new areas would be proposed to support the future housing development within the Walnut Bluff and Orange Bluff sites.

<sup>18</sup> City Municipal Code, Ch.20, Sec.20.02.020.

The Project would use this Specific Plan designation in order to provide housing for very low and low income households. The Walnut Bluff and Orange Bluff sites would require a zoning change to SP-7 in order to accommodate specific housing for these income levels. SP-7 zoning includes guidelines for multi-family dwelling units and accessory uses permitted such as community meeting rooms, laundry facilities on-site for use of the households, open space, carports and uncovered parking lots. Income levels above very low and low income would be restricted from occupancy within this plan. Additionally, the maximum dwelling unit density would be limited to 35-45 or Very High Density Residential land use designation which would align with the SP-7 plan. Other requirements of the SP-7 zoning include building height; required setbacks; landscape materials and turf; fences, walls, and hedges; off-street parking; trash and recycling storage; signs; mechanical equipment; and utilities. These would be defined specifically within each individual site area in order to accommodate and maintain consistency within the existing land uses surrounding the future development site. Future development would not be approved via the approval of the Project and would be required to follow the development standards of the SP-7 guidelines including site plan review and building design requirements.

**Town Center West Specific Plan District**

The Town Center West Specific Plan District (SP-3) includes the area to the east of Cherry Avenue and north of Willow Street. The Project proposes a zoning amendment for the Town Center Northwest site to a Town Center Northwest Specific Plan (SP-21). This designation would allow for mixed-use commercial and residential projects for future development. Existing Town Center West Specific Plan (SP-3) zoning outlines provisions for property development and other standards. These standards include criteria for providing pay phones and vending machines and required permits. Other provisions include maximum hardscape allowance for properties such as hardscape in front and street side setbacks limited to driveways and walkways only. Under these guidelines, turf is not required or preferred over drought tolerant materials which retain water on-site. Commercial marijuana activity is also prohibited under this zonation. The rezoning of the Town Center Northwest Site would be defined specifically within Town Center Northwest individual site area in order to accommodate and maintain consistency within the existing land uses surrounding the future development site. Guidelines for future development of mixed-use commercial projects would be developed under the Project and approved by the City. As such, the proposed Project would be consistent with the future re-zoning to SP-21 and environmental impacts would be less than significant.

**Heritage Square Specific Plan**

The Land Use Element in the City's General Plan proposed changes in the 2001 update for the development of the Heritage Square Central Business District. This proposed district would be combined

with the Central Business District designation allowing for the development of high intensity mixed-use space which includes retail shops, entertainment, dining, fitness center as well as high density residential development. This designation would include a mixed-use intensive commercial and residential specific plan added to the Commercial Town Center area located between 25<sup>th</sup> and Creston Streets and Rose and Cherry Avenues. The Heritage Square Specific Plan (SP-23) would be developed using the proposed designation in the Land Use Element and would accommodate for the Heritage Square Housing Site located near the City center in the Civic Center neighborhood, northwest of the intersection of Cherry Avenue and E. Burnett Street. Future development of the Heritage Square Site and the Heritage Square Specific Plan (SP-23) would be required to follow the existing Municipal Code guidelines and the City's General Plan

### **Los Angeles County Airport Land Use Plan**

As previously discussed, California State Law requires the establishment of an Airport Land Use Commission (ALUC) with the purpose of planning for areas within the vicinity of public use airports. The Los Angeles County Airport Land Use Plan (ALUP) is required by State law through the ALUC in order to protect the public, health, safety, and welfare of the surrounding areas. The Long Beach Municipal Airport (LGB) is included in the Los Angeles ALUP. The City of Signal Hill is located northeast adjacent to the Long Beach Airport. However, the proposed Housing Sites are not within the Long Beach Airport Influence Area and would not be subject to the Los Angeles ALUP.

## **5. MITIGATION MEASURES**

No mitigation measures would be required. With the proposed General Plan amendments and rezoning, the proposed Project would not result in any significant conflicts with existing land use plan, policy, or regulation.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Impacts would be less than significant. No mitigation measures are required.

### 1. INTRODUCTION

This section of the Draft EIR analyzes the potential noise and vibration impacts associated with the Signal Hill Housing Element (Project). Specifically, the analysis describes the existing noise environment within the City of Signal Hill (City), estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the Project, identifies the potential for impacts, and provides mitigation measures to address any significant impacts. In addition, evaluation of the potential cumulative noise and vibration impacts resulting from the Project and future growth are also provided. Noise calculation worksheets are included in **Appendix G** of this Draft EIR.

### 2. ENVIRONMENTAL SETTING

#### Fundamentals of Sound

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters that describe the physical properties of sound waves. These properties include the rate of oscillation (frequency); the distance between successive troughs or crests, the speed of propagation; and the pressure level or energy content of a given sound wave. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The unit of sound pressure expressed as a ratio to the faintest sound detectable to a person with normal hearing is called a decibel (dB). Decibels provide a logarithmic loudness scale (similar to the Richter scale used for earthquake magnitudes), which is used to keep sound intensity numbers at a convenient and manageable range. The human ear is not equally sensitive to all sound frequencies within the entire spectrum. Noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called “A weighting,” written as dBA. Further reference to decibels in this analysis should be understood to be A-weighted.

Several noise descriptors have been developed to evaluate the adverse effect of community noise on people. Since noise level fluctuates over time, an equivalent sound level (Leq) descriptor is used to describe typical time-varying instantaneous noise. Finally, because community receptors are more sensitive to unwanted noise intrusion during evening and nighttime hours, State law requires that an artificial decibel increment be added to noise occurring during those time periods. The 24-hour noise descriptor with a specified evening (7:00 to 10:00 PM) and nighttime (10:00 PM to 7:00 AM) penalty is called the Community Noise Equivalent Level (CNEL).

Noise sources can generally be categorized as one of two types: (1) point sources, such as stationary mechanical equipment; and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically hard sites, and at a rate of 7.5 dBA at acoustically soft sites.<sup>1</sup> A hard or reflective site consists of asphalt, concrete, or very hard-packed soil, which does not provide any excess ground-effect attenuation. An acoustically soft or absorptive site is characteristic of normal earth and most ground with vegetation. As an example, a 60-dBA noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Noise from the same point source at an acoustically soft site would be 52.5 dBA at 100 feet and 45 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively.<sup>2</sup>

Different types of scales are used to characterize the time-varying nature of sound. Applicable scales include the maximum noise level (L<sub>max</sub>), Leq, and the CNEL. L<sub>max</sub> is the maximum noise level measured during a specified period. Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. CNEL is an average A-weighted sound level measured over a 24-hour period. However, this noise scale is adjusted to account for some individuals' increased sensitivity to noise levels during the evening and nighttime hours. A CNEL noise measurement is obtained by adding 5 dBA to sound levels occurring during the evening, from 7:00 PM to 10:00 PM, and 10 dBA to sound levels occurring during the nighttime, from 10:00 PM to 7:00 AM. The 5 dBA and 10 dBA "penalties" are applied to account for increased noise sensitivity during the evening and nighttime hours. Day-night average level (L<sub>dn</sub>) is the A-weighted equivalent sound level for a 24-hour period with an additional 10 dBA imposed on the equivalent sound levels for nighttime hours of 10:00 PM to 7:00 AM. **Table 4.8-1: Noise Descriptors** identifies various noise descriptors developed to measure sound levels over different periods of time.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receiver and the noise source reduces the noise level by about 5 dBA, whereas a solid wall or berm reduces noise levels by 5 to 10 dBA.<sup>3</sup> In addition, noise is substantially reduced from outdoor to indoor areas as a result of structural designs that attenuate noise. Windows are a common feature used by building occupants to control the effects of outdoor noise on interior noise levels. The exterior-to-interior reduction of noise for newer residential units is generally 20 dBA or more with the windows in a closed position. The minimum attenuation of exterior-to-interior noise provided by typical structures is provided in **Table 4.8-2: Outside-to-Inside Noise Attenuation**.

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1 USDOT FHWA, *Fundamentals and Abatement*, 97.

2 USDOT FHWA, *Fundamentals and Abatement*, 97.

3 USDOT FHWA, *Highway Noise Fundamentals* (1980), 18.

**Table 4.8-1**  
**Noise Descriptors**

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.
A-weighted decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent sound level (Leq)	The sound level containing the same total energy as a time-varying signal over a given time period. The Leq is the value that expresses the time-averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.
Community noise equivalent level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dBA for the evening (7:00 PM to 10:00 PM) and add 10 dBA for the night (10:00 PM to 7:00 AM). The 5 and 10 dBA penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dBA of the peak-hour Leq. <sup>a</sup>
Sound pressure level	Force of sound on a surface area perpendicular to the direction of the sound. Sound pressure level is expressed in decibels.
Ambient noise	The level of noise that is all encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient environment.

<sup>a</sup> California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol (Sacramento, California: September 2013).

**Table 4.8-2**  
**Outside-to-Inside Noise Attenuation**

Building Type	Reduction in dBA	
	Open Windows	Closed Windows <sup>a</sup>
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent homes	17	25
Offices	17	25

Source: Bolt Beranek and Newman, Inc., Highway Noise: A Design Guide for Highway Engineers, NCHRP Report No. 117, (1971). Prepared for Highway Research Board, National Academy of Sciences, Washington, D.C.

<sup>a</sup> As shown, structures with closed windows can attenuate exterior noise by a minimum of 25.0 to 30.0 dBA.

## Fundamentals of Vibration

Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root-mean-square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response to ground-borne vibration. The RMS vibration velocity level can be presented in inches per second (ips) or in vibration decibels (VdB, a decibel unit referenced to 1 microinch per second). Generally, ground-borne vibration generated by man-made activities (e.g., road traffic, construction activity) attenuates rapidly with distance from the source of the vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.<sup>4</sup> Most perceptible indoor vibration is caused by sources within buildings such as the operation of mechanical equipment, the movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity, to 100 VdB, which is the threshold where minor damage can occur in fragile buildings.

## Existing Conditions

### *Ambient Noise Levels*

Short-term sound monitoring was conducted at each of the Housing Sites to measure the ambient sound environment in the Project vicinity. Measurements were taken over 15-minute intervals at each location between the hours of 7:17 AM and 11:08 AM on August 5, 2021. As shown in **Table 4.8-3: Existing Noise Measurements**, ambient noise levels ranged from a low of 58.0 dBA Leq to a high of 71.2 dBA Leq at the Orange Bluff Site, a low of 61.1 dBA Leq to a high of 70.5 dBA Leq at the Walnut Bluff Site, a low of 65.4 dBA Leq to a high of 72.7 dBA Leq at the Town Center Northwest Site, and a low of 52.0 dBA Leq to a high of 71.7 dBA Leq at the Heritage Square Site.

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4 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, 7-8.



**Table 4.8-3**  
**Existing Noise Measurements**

Housing Site	Number/Description	Nearest Use	Time Period	Noise Source	dBA Leq
<b>Orange Bluff</b>					
1	Southeast corner of Orange Avenue and E. 28 <sup>th</sup> Street	Orange Bluff Site	7:17 AM– 7:32 AM	Traffic along Orange Avenue	71.2
2	Northeast corner of Orange Bluff Site	Orange Bluff Site	7:36 AM– 7:51 AM	Traffic along E. 28 <sup>th</sup> Street and Gundry Avenue	61.2
3	Southeast corner of Orange Bluff Site	Orange Bluff Site	7:55 AM– 8:10 AM	Traffic along Gundry Avenue	58.0
<b>Walnut Bluff</b>					
1	Southern border of Walnut Bluff Site	Walnut Bluff Site	8:19 AM– 8:34 AM	Traffic along E. Willow Street	70.5
2	Eastern border of Walnut Bluff Site	Walnut Bluff Site	8:36 AM– 8:51 AM	Traffic along Walnut Avenue and E. Willow Street	61.1
<b>Town Center Northwest</b>					
1	Southern border of Town Center Northwest Site	Town Center Northwest Site	9:00 AM– 9:15 AM	Traffic along E. Willow Street	72.7
2	Western border of Town Center Northwest Site	Town Center Northwest Site	9:26 AM– 9:41 AM	Traffic along Walnut Avenue	65.4
<b>Heritage Square</b>					
1	Southern border of Heritage Square Site	Heritage Square Site	9:47 AM– 10:02 AM	Traffic along Cherry Avenue	59.3
2	Western border of Heritage Square Site	Heritage Square Site	10:14 AM– 10:29 AM	Traffic along Rose Avenue	52.0
3	Northern border of Heritage Square Site	Heritage Square Site	10:34 AM– 10:49 AM	Traffic along Crescent Heights Street	62.1
4	Eastern border of Heritage Square Site	Heritage Square Site	10:53 AM– 11:08 AM	Traffic along Cherry Avenue	76.3

Source: Refer to **Appendix G** for noise monitoring data sheets.

Notes: dBA = A-weighted decibels; Leq = average equivalent sound level.

## Existing Vibration Levels

The primary source of existing ground-borne vibration near the Housing Sites is vehicle traffic on nearby roadways. According to the Federal Transit Administration (FTA),<sup>5</sup> typical road traffic-induced vibration levels are unlikely to be perceptible by people. In part, FTA indicates that “it is unusual for vibration from traffic including buses and trucks to be perceptible, even in a location close to major roadways.” Therefore, based on FTA published vibration data, the existing ground vibration environment in the Project vicinity would be below the perceptible levels. Trucks and buses typically generate vibration velocity levels of approximately 63 VdB (at 50-feet distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road.

## Noise Sensitive Land Uses

Some land uses are considered more sensitive to intrusive noise than others based on the types of activities typically involved with the land use. Noise-sensitive uses include residences, transient lodgings, dormitories, motels, hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks. These uses are generally considered more sensitive to noise than are commercial and industrial land uses. **Table 4.8-4: Sensitive Receptors per Housing Site**, details the location and distance of the sensitive receptors within 500 feet of the Housing Sites.

**Table 4.8-4**  
**Sensitive Receptors per Housing Site**

Housing Site	Sensitive Receptors within 500 Feet	Distance from Site
Orange Bluff	Recreational use to the west along Orange Avenue	55 Feet
Walnut Bluff	Residential uses to the south along E. Willow Street	100 Feet
	Recreational use to the south along E. Willow Street	215 Feet
Town Center Northwest	Residential uses to the south along E. Willow Street	170 Feet
	Residential uses to the south along Crescent Heights Street	430 Feet
Heritage Square	Residential uses to the west along Rose Avenue	30 Feet
	Residential uses to the north along Crescent Heights Street	175 Feet
	Residential uses to the southeast along Ocean View Drive	250 Feet

5 Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf). Accessed September 2021.

## Roadway Noise Modeling

In addition to the ambient noise measurements near the Housing Sites, the existing traffic noise on local roadways in the surrounding areas was calculated to quantify AM and PM peak hour noise levels using information provided in the Transportation Impact Analysis prepared by Ganddini Group, Inc. (refer to **Appendix H**). The transportation analysis analyzed a total of 11 intersections. These intersections and connecting roadway segments were selected for the generation of existing off-site traffic noise.

The results of the existing roadway noise modeling are provided in **Table 4.8-5: Estimated Existing Roadway Noise Levels**. As shown in **Table 4.8-5**, AM roadway noise levels ranged from a low of 45.0 dBA along Walnut Avenue north of Spring Street (Intersection 6), to a high of 69.2 dBA along Willow Street east of Orange Avenue (Intersection 4). In addition, PM roadway noise levels ranged from a low of 46.6 dBA along Walnut Avenue north of Spring Street (Intersection 6), to a high of 70.2 dBA along Willow Street east of Orange Avenue (Intersection 4).

**Table 4.8-5**  
**Estimated Existing Roadway Noise Levels**

Intersection	Roadway Segment	Time Period	Existing Baseline (2021) Roadway Noise Level (dBA)
<b>Orange Avenue</b>			
1	North of 32 <sup>nd</sup> Street	AM	63.2
		PM	63.6
	South of 32 <sup>nd</sup> Street	AM	59.5
		PM	60.1
2	North of I-405 Southbound Ramps	AM	54.8
		PM	55.5
	South of I-405 Southbound Ramps	AM	55.5
		PM	56.1
3	North of Spring Street	AM	56.9
		PM	57.4
	South of Spring Street	AM	66.1
		PM	66.2
4	North of Willow Street	AM	59.1
		PM	59.3
	South of Willow Street	AM	66.5
		PM	66.8
5	North of Burnett Street	AM	57.3
		PM	57.5
	South of Burnett Street	AM	66.0
		PM	66.1

			Existing Baseline (2021) Roadway Noise Level
Intersection	Roadway Segment	Time Period	(dBA)
32 <sup>nd</sup> Street			
1	East of Orange Avenue	AM	55.7
		PM	56.8
	West of Orange Avenue	AM	51.9
		PM	50.7
I-405 Southbound Ramps			
2	East of Orange Avenue	N/A	N/A
		N/A	N/A
	West of Orange Avenue	AM	57.1
		PM	55.3
Spring Street			
3	East of Orange Avenue	AM	61.9
		PM	61.9
	West of Orange Avenue	AM	67.7
		PM	68.1
6	East of Walnut Avenue	AM	53.5
		PM	53.9
	West of Walnut Avenue	AM	56.0
		PM	56.4
9	East of Cherry Avenue	AM	59.0
		PM	58.9
	West of Cherry Avenue	AM	53.7
		PM	53.8
Willow Street			
4	East of Orange Avenue	AM	69.2
		PM	70.2
	West of Orange Avenue	AM	58.3
		PM	59.0
7	East of Walnut Avenue	AM	62.2
		PM	63.2
	West of Walnut Avenue	AM	66.5
		PM	67.4
10	East of Cherry Avenue	AM	56.7
		PM	57.7
	West of Cherry Avenue	AM	58.8
		PM	59.5
Burnett Street			
5	East of Orange Avenue	AM	49.5
		PM	48.5
	West of Orange Avenue	AM	58.3

			Existing Baseline (2021) Roadway Noise Level
Intersection	Roadway Segment	Time Period	(dBA)
8	East of Walnut Avenue	PM	57.2
		AM	58.9
	West of Walnut Avenue	PM	58.9
		AM	59.9
	East of Cherry Avenue	PM	58.9
		AM	46.3
11	West of Cherry Avenue	PM	47.5
		AM	59.4
		PM	58.9
		AM	
Walnut Avenue			
6	North of Spring Street	AM	45.0
		PM	46.6
	South of Spring Street	AM	47.9
		PM	49.3
7	North of Willow Street	AM	53.7
		PM	54.9
	South of Willow Street	AM	59.5
		PM	60.5
8	North of Cherry Avenue	AM	54.9
		PM	55.9
	South of Cherry Avenue	AM	54.0
		PM	54.2
Cherry Avenue			
9	North of Spring Street	AM	55.6
		PM	55.9
	South of Spring Street	AM	54.8
		PM	55.3
10	North of Willow Street	AM	55.2
		PM	55.7
	South of Willow Street	AM	56.2
		PM	56.6
11	North of Burnett Street	AM	60.5
		PM	60.9
	South of Burnett Street	AM	64.5
		PM	64.8

Source: Based on Signal Hill Housing Element Transportation Impact Analysis, Ganddini Group, Inc., dated August 21, 2021.  
Roadway noise model results are provided in **Appendix G**.

### 3. REGULATORY FRAMEWORK

#### Federal

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. OSHA is responsible for the protection against the effects of noise exposure when sound levels exceed those, listed in **Table 4.8-6: Permissible Noise Exposures**, when measured on the A-weighted scale of a standard sound level meter at slow response.<sup>6</sup>

**Table 4.8-6**  
**Permissible Noise Exposures**

Duration per day, hours	Sound level dBA
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: OSHA, Occupational Noise Exposure, <https://www.osha.gov/noise>. Accessed September 2021.

#### ***Federal Transit Administration Vibration Guidelines***

The FTA has published a technical manual, *Transit Noise and Vibration Impacts Assessment*, that provides ground-borne vibration impact criteria with respect to building damage during construction activities.<sup>7</sup> According to the FTA guidelines, a vibration criterion of 0.20 PPV should be considered as the significant impact level for nonengineered timber and masonry buildings. Structures or buildings constructed of reinforced concrete, steel, or timber have a vibration damage criterion of 0.50 PPV based on the FTA guidelines. Structures amplify ground-borne vibration, and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than are heavier buildings. The level at which

<sup>6</sup> OSHA, Occupational Noise Exposure, <https://www.osha.gov/noise>. Accessed September 2021.

<sup>7</sup> FTA, Transit Noise and Vibration Impact Assessment, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf). Accessed September 2021.

ground-borne vibration is strong enough to cause architectural damage has not been determined conclusively.

The most conservative estimates are reflected in the FTA standards, shown in **Table 4.8-7: Construction Vibration Damage Criteria**.

**Table 4.8-7**  
**Construction Vibration Damage Criteria**

Building Category	PPV (ips)	Lv (VdB)
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Nonengineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA, Transit Noise and Vibration Impact Assessment, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf). Accessed September 2021.

Note: For Max Lv (VdB), Lv = the velocity level in decibels as measured in 1/3 octave bands of frequency over the frequency ranges of 8 to 80 Hz; VdB = vibration decibels; Hz = hertz; ips = inches per second.

## State

### Noise

The State of California has adopted noise compatibility guidelines for general land use planning. The types of land uses addressed by the State and the acceptable noise categories for each land use are included in the State of California General Plan Guidelines, which is published and updated by the Governor's Office of Planning Research.<sup>8</sup> The level of acceptability of the noise environment is dependent on the activity associated with the particular land use. Noise exposure for single-family uses is normally acceptable when the CNEL at exterior residential locations is equal to or below 60 dBA, conditionally acceptable when the CNEL is between 55 to 70 dBA, and normally unacceptable when the CNEL exceeds 70 dBA. These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements.

The Project would be required to comply with California's noise insulation standards, which are codified in the 24 Cal. Code of Regs. Part 2 (the California Building Code). These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that

<sup>8</sup> Governor's Office of Planning and Research, State of California General Plan Guidelines, (2017), [http://www.opr.ca.gov/docs/OPR\\_COMPLETE\\_7.31.17.pdf](http://www.opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf). Accessed September 2021.

accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

## ***Vibration***

Caltrans published its *Transportation and Construction Vibration Guidance Manual* in April 2020.<sup>9</sup> The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. This manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08 to 0.12 inches per second for extremely fragile historic buildings, ruins, and ancient monuments, to 0.50 to 2.0 inches per second for modern industrial and commercial buildings.

The guidance and procedures provided in the Caltrans manual are suitable for use as screening tools for assessing the potential for adverse effects related to human perception and structural damage. General information on the potential effects of vibration on vibration-sensitive research and advanced-technology facilities is also provided, but a discussion of detailed assessment methods in this area is beyond the manual's scope.

## **Local**

### ***City of Signal Hill General Plan***

The City of Signal Hill General Plan Noise Element provides guidance for the control of noise to protect residents, workers, and visitors from potentially adverse noise impacts.<sup>10</sup> The City has adopted local guidelines based on the community noise compatibility guidelines established by the California Department of Health Services for use in assessing the compatibility of various land use types with a range of noise levels as shown in **Table 4.8-9: Land Use Compatibility for Community Noise Exposure**. As shown in **Table 4.8-9**, the noise standard for multi-family residential development is considered “normally acceptable” between 50 dBA and 65 dBA, “conditionally acceptable” between 60 dBA and 70 dBA, “generally unacceptable” between 70 dBA and 75 dBA, and “land use discouraged” above 75 dBA.

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9 Caltrans, *Transportation and Construction Vibration Guidance Manual*, <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>. Accessed September 2021.

10 City of Signal Hill General Plan, Noise Element, December 2009.



**Table 4.8-9**  
**Land Use Compatibility for Community Noise Exposure**

Land Use Categories	Community Noise Equivalent Level (CNEL)					
	55	60	65	70	75	80
Residential: Low-Density Family, Duplex, Mobile Homes						
Residential: Multiple Family						
Transient Lodging: Motel, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena and Outdoor Spectator Sports						
Playgrounds and Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, and Cemeteries						
Office Buildings, Businesses, Commercial, and Professional						
Industrial, Manufacturing, Utilities, Agriculture						


 Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.  
 Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.  
 Generally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.  
 Land Use Discouraged: New construction or development should generally not be undertaken.

Source: City of Signal Hill General Plan, Noise Element, December 2009.

Additionally, the General Plan includes interior and exterior noise standards as summarized in **Table 4.8-10: Noise Compatibility Criteria by Land Use**. **Table 4.8-10** shows standards and criteria that specify acceptable limits of noise for various land uses throughout the City.

**Table 4.8-10**  
**Noise Compatibility Criteria by Land Use**

<b>Land Use</b>	<b>Compatibility Criteria</b>
<b><i>Residential</i></b>	
Exterior	Outdoor living areas must be mitigated to 65 dB CNEL or less.
Interior	Habitable rooms must be mitigated to 45 dB CNEL or less.
<b><i>Other Noise-Sensitive Uses</i></b>	
Exterior	Same as residential criterion.
Interior	Same as residential criterion.
<b><i>Commercial</i></b>	
Exterior	A noise level of 70 dB CNEL or less, or one that does not interfere with normal business activity.
<b><i>Industrial</i></b>	
Exterior	A noise level of 75 dB CNEL or less, or one that does not interfere with normal business activity. Public access areas should be 65 dB CNEL or less.

*Source: City of Signal Hill General Plan, Noise Element, December 2009.*

The Noise Element of the General Plan includes the following policies that are applicable to the development of the project:

- **Policy 1.a:** The City will consider the severity of noise exposure in the community planning process to prevent or minimize noise impacts to existing and proposed land uses.
- **Policy 1c:** Noise-sensitive land uses, including residential, transient lodging, hospitals and long-term care facilities, educational facilities, libraries, churches, and places of public assembly will not be located near major stationary noise sources.
- **Policy 1.d:** The City will inform those living and working within the city of the effects of noise pollution and will cooperate with all levels of government to reduce or minimize impacts.
- **Policy 1.e:** Require noise mitigation to ensure that noise-sensitive land uses are not exposed to noise levels of greater than 45 dB in habitable rooms and 65 dB in outdoor living areas.

### ***City of Signal Hill Municipal Code***

Chapter 9.16 of the City of Signal Hill Municipal Code (SHMC) establishes noise control regulations that would have a limited application to construction noise impacts, as the SHMC exempts construction activities from the chapter's provisions during daytime hours when these activities would occur. Specifically, Section 9.16.050 of the SHMC states no person shall carry on any construction activities,

including the erection, demolition, excavation, modification, alteration or repair of any building or structures, or any other activities creating construction noise as defined in this section other than between the hours of 7:00 AM and 6:00 PM on weekdays.

## 4. ENVIRONMENTAL IMPACTS

### Thresholds of Significance

To assist in determining whether the Project would have a significant effect on the environment, the Project may be deemed to have a significant impact related to noise if it would:

**Threshold IV. NOI-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

**Threshold IV. NOI-2: Generation of excessive groundborne vibration or groundborne noise levels?**

As discussed in the Initial Study (**Appendix A**), The adoption of the Project does not provide additional facilities to house residents or workers within a 2-mile radius of an airport. Additionally, the Housing Sites are not within 2 miles of the airport. Impacts related to airport noise would therefore be less than significant and are not further discussed in this section.

### Construction Noise

As discussed previously, Section 9.16.050 of the SHMC prohibits construction activities between the hours of 6:00 PM and 7:00 AM the following day on weekdays. Construction occurring outside of the allowed time periods would be subject to the City's allowable noise levels. Therefore, to result in a significant impact from construction noise sources, the Project would have to generate construction noises outside the exempted hours set forth by Section 9.16.050 of the SHMC that are in exceedance of the allowable noise levels laid out by the City's General Plan Noise Element. However, in the context of the questions from **Appendix H**, construction noise impacts can occur if such noise reaches substantial levels at nearby sensitive receptors. Construction-related noise level thresholds are established in the *Transit Noise and Vibration Assessment Manual* prepared in 2018 by the FTA.<sup>11</sup> The FTA construction-related daytime noise level threshold starts at 80 dBA for residential uses. As such, FTA's construction-related daytime noise

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11 Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment Manual* (September 2018), [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf), accessed September 2021.

level threshold of 80 dBA Leq is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

### ***Operational Noise***

The accuracy of sound level meters and computer models is no better than 1 dBA. This is also the human loudness difference discrimination under ideal laboratory conditions. Most people cannot distinguish less than 3 dBA noise difference. Because of the logarithmic nature of the noise scale, it requires a dramatic increase in traffic to create even a perceptible change in noise levels. A 1 dBA increase requires a 25 percent increase in traffic volume. A 3 dBA increase occurs when traffic volumes double. In those areas where traffic volumes are already high enough to create a noise concern, few projects would individually cause traffic volumes to double. Off-site traffic noise impacts tend to be cumulative rather than an individual impact.

Therefore, the Project would have a significant impact on noise levels from Project operations if:

- The Project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to exceed the City's Exterior Noise Standards; or
- Off-site noise levels increased by more than 3 dBA due to project-related traffic near sensitive receptors.

### ***Vibration***

Significance thresholds concerning construction vibration levels have not been adopted by the City. Therefore, this analysis relies on FTA guidance regarding vibration velocities for construction equipment operations. As discussed above, vibration levels can be described in terms of acceleration or velocity. Since the published vibration levels for typical construction equipment are expressed in terms of velocity (PPV and/or VdB), the FTA guidelines (in terms of velocity) are used to evaluate potential impacts related to construction vibration for potential building damage. Based on this FTA guidance, impacts relative to ground-borne vibration associated with potential building damage would be considered significant if any of the following future events were to occur:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building.

- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

## **Methodology**

### ***Ambient Noise Measurements***

To establish baseline noise conditions, existing ambient noise levels, as described above, were monitored at the eleven representative locations within the vicinity of the Housing Sites. These monitored noise levels serve as the baseline for the analysis of Project impacts. The baseline noise-monitoring program was conducted on August 5, 2021, using a Larson Davis 831 Type 1 Sound Level Meter.

### ***Construction Noise***

#### **On-Site Construction**

Construction activities typically generate noise from the operation of equipment required for construction of various facilities. Noise impacts from on-site construction and staging of construction trucks were evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise level at nearby noise-sensitive receptor locations, and comparing these construction-related noise levels to FTA's construction-related daytime noise level threshold of 80 dBA Leq. The actual noise level would vary, depending upon the equipment type, model, the type of work activity being performed, and the condition of the equipment.

In order to calculate a construction CNEL, hourly activity or utilization factors (i.e., the percentage of normal construction activity that would occur, or construction equipment that would be active, during each hour of the day) are estimated based on the temporal characteristics of other previous and current construction projects. The hourly activity factors express the percentage of time that construction activities would emit average noise levels. Typical noise levels for each type of construction equipment were obtained from the FHWA Roadway Construction Noise Model. Calculated noise levels associated with construction at noise-sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified below.

#### **Construction Traffic Noise**

The analysis of construction traffic noise impacts focuses on off-site areas by: (1) identifying major roadways that may be used for construction worker commute routes or truck haul routes; (2) generally identifying the nature and location of noise-sensitive receptors along those routes; and (3) evaluating the traffic characteristics along those routes, specifically as related to existing traffic volumes. Construction traffic volume and road parameter data would be input into the FHWA TNM model to calculate average noise levels for these trips. Construction trucks staging and hauling route noise impacts would be

evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise levels and comparing against existing ambient noise levels (i.e., noise levels without construction noise) and exterior standards.

### **Construction Equipment Vibration**

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. While ground vibrations from construction activities do not often reach the levels that can damage structures, fragile buildings must receive special consideration.

Impacts due to construction activities were evaluated by identifying vibration sources (i.e., construction equipment), measuring the distance between vibration sources and surrounding structure locations, and making a significance determination.

For quantitative construction vibration assessments related to building damage, vibration source levels for construction equipment were taken from the FTA *Transit Noise and Vibration Impact Assessment Manual*. Building damage would be assessed for each piece of equipment individually and assessed in terms of peak particle velocity.

The vibration source levels for various types of equipment are based on data provided by the FTA.

## ***Operational Noise***

### **Roadway Noise**

Traffic data from the Project's Transportation Impact Analysis (**Appendix H**) was utilized to calculate roadway traffic noise levels. Traffic noise levels were modeled using the FHWA TNM. The FHWA TNM calculates noise associated with a specific line source and the results characterize noise generated by motor vehicle travel along a specific roadway segment. The traffic noise impact analysis is based on the 24-hour CNEL noise descriptor and incorporates traffic volumes, vehicle mix, posted speed limits, roadway geometry, and site conditions. Noise levels were evaluated with respect to the following traffic scenarios:

- Existing Baseline (2021) Without Project conditions;
- Existing Baseline (2021) With Project conditions;
- General Plan Buildout (Year 2041) Without Project conditions; and
- General Plan Buildout (Year 2041) With Project conditions.

## Vibration

The majority of the Project's operational-related vibration sources, such as mechanical and electrical equipment, would incorporate vibration attenuation mounts, as required by the particular equipment specifications. Therefore, operation of the Project would not increase the existing vibration levels in the immediate vicinity of the Housing Sites and, as such, vibration impacts associated with the Project would be minimal. Therefore, the ground borne vibration analysis is limited to Project-related construction activities.

## Environmental Impacts

**Threshold IV. NOI-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

### Construction

Noise from construction activities will be affected by the amount of construction equipment, the location of this equipment, the timing and duration of construction activities, and the relative distance to noise-sensitive receivers. Construction activities that would occur during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Housing Sites. Each phase would involve the use of different types of construction equipment and, therefore, have its own distinct noise characteristics.

### On-Site Construction Noise

Individual pieces of construction equipment that would be used during construction produce maximum noise levels of 73 dBA to 85 dBA at a reference distance of 50 feet from the noise source, as shown in **Table 4.8-11: Typical Maximum Noise Levels for Project Construction Equipment**.

To characterize construction-period noise levels, the average (hourly Leq) noise level associated with each construction stage was calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction stage. These noise levels are typically associated with multiple pieces of equipment operating simultaneously.

Construction equipment operates at its noisiest levels for certain percentages of time during operation. Equipment such as excavators, graders, and loaders would operate at different percentages over the course of an hour.<sup>12</sup> During a construction day, the highest noise levels would be generated when multiple

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<sup>12</sup> Federal Highway Administration, Traffic Noise Model (2006).

pieces of construction equipment are operated concurrently. The estimated construction noise levels were calculated for a scenario in which up to nine pieces of construction equipment was assumed to be operating simultaneously, given the physical size of the Housing Sites and logistical limitations, and with the noise equipment located at the construction area nearest to the affected receivers to present a conservative impact analysis. This is considered a worst-case evaluation because construction activities would typically use fewer pieces of equipment simultaneously at any given time and, accordingly, would likely generate lower noise levels than reported herein.

**Table 4.8-11**  
**Typical Maximum Noise Levels for Project Construction Equipment**

Equipment Description	Typical Duty Cycle (%)	Spec Lmax (dBA)	Actual Lmax (dBA)
Air Compressor	40	80.0	77.7
Backhoe	40	80.0	77.6
Crane	16	85.0	80.6
Dozer	40	85.0	81.7
Drum Mixer	50	80.0	80.0
Excavator	40	85.0	80.7
Forklift	40	85.0	N/A
Generator	50	82.0	80.6
Grader	40	85.0	N/A
Loader	40	80.0	79.1
Paver	50	85.0	77.2
Roller	20	85.0	80.0
Tractor	40	84.0	N/A
Welder	40	73.0	74.0

Source: FHWA Roadway Construction Noise Model (RCNM) version 1.1

Note: N/A = not available.

Separate forecasts of construction noise levels from on-site construction at the nearest sensitive receptor for each Housing Site were completed. The forecast noise levels at the nearest sensitive receptors to the Housing Sites from construction activity are shown in **Table 4.8-12: Construction Maximum Noise Estimates**. As shown in **Table 4.8-12**, construction noise levels at the Walnut Bluff Site and Town Center Northwest Site would not exceed the significance threshold. However, construction noise levels at the Orange Bluff Site and Heritage Square Site would result in a maximum increase of outdoor noise levels up to 7.1 dBA and 12.4 dBA over the significance threshold, respectively.



Consistent with goals of the City's General Plan, the Project would be required to minimize the noise impacts associated with point-sources and ambient noise levels throughout the community. The Project would utilize construction best management practices to reduce construction related noise to the greatest extent possible. Construction best management practices are intended to prevent the use of non-standard construction equipment, unnecessary idling, equipment that is not appropriately muffled, and not to increase overall construction noise, in general, during allowable hours.

**Table 4.8-12**  
**Construction Maximum Noise Estimates**

Housing Site	Nearest Off-Site Building Structures	Distance from Construction Equipment (feet)	Max Leq	Ambient Noise Leq (dBA)	Significance Threshold (dBA)	Maximum Outdoor Noise Increase over Significance Threshold without Mitigation Measures (dBA)
Orange Bluff	Recreational use to the west along Orange Avenue	55	87.1	71.2	80.0	+7.1
Walnut Bluff	Residential uses to the south along E. Willow Street	100	78.1	70.5	80.0	0.0
Town Center Northwest	Residential uses to the south along E. Willow Street	170	77.3	72.7	80.0	0.0
Heritage Square	Residential uses to the west along Rose Avenue	30	92.4	52.0	80.0	+12.4

Source: Refer to **Appendix G** for construction noise worksheets.

Implementation of **Mitigation Measure MM N-1** would require the use of optimal muffler systems that would reduce construction noise levels by approximately 10 dB or more.<sup>13</sup> Additionally, limiting the number of noise-generating heavy-duty off-road construction equipment (e.g., backhoes, dozers, excavators, loaders, rollers, etc.) simultaneously used on a Housing Site to no more than one or two pieces of heavy-duty off-road equipment would further reduce construction noise levels by approximately 14

13 FHWA, Special Report – Measurement, Prediction, and Mitigation, updated June 2017.  
[https://www.fhwa.dot.gov/Environment/noise/construction\\_noise/special\\_report/hcn04.cfm](https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm). Accessed September 2021.

dBa. A temporary noise barrier can achieve a 5 dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver. After it breaks the line-of-sight, it can achieve approximately 1.5 dBA of additional noise level reduction for each 1 meter (3.3 feet) of barrier height.<sup>14</sup> With implementation of these common practices, construction noise levels would be reduced by a minimum of 29 dB. Consequently, with implementation of **MM N-1**, maximum construction noise levels at the Orange Bluff Site and Heritage Square Site would be reduced to below the significance threshold.

Moreover, the Project would be required to comply with Section 9.16.050 of the SHMC which exempts noise from construction as long as construction activities do not occur outside of the hours of 7:00 AM and 6:00 PM on weekdays. Accordingly, with adherence to the SHMC, on-site construction noise impacts would be less than significant.

### Off-Site Construction Noise

Construction of the Project would require worker, haul, and vendor truck trips to and from the Housing Sites to work on-site, export demolition debris, and deliver supplies. Trucks traveling to and from the Housing Sites would be required to travel along a haul route approved by the City.

Development of the Orange Bluff Site would require a maximum of 212 worker trips per day and 32 vendor trips per day throughout construction. Vehicle trips which include medium-duty trucks would generate a maximum noise level of approximately 56.3 dBA, at the nearest sensitive receptor. As shown in **Table 4.8-3**, existing noise levels at the Orange Bluff Site ranged from 58.0 dBA to 71.2 dBA. The noise level increases from truck trips would be below the significance threshold of 80 dBA and would not exceed existing noise levels. Accordingly, off-site construction noise impacts for the Orange Bluff Site would be less than significant.

Development of the Walnut Bluff Site would require a maximum of 65 worker trips per day and 10 vendor trips per day throughout construction. Vehicle trips which include medium-duty trucks would generate a maximum noise level of approximately 51.2 dBA, at the nearest sensitive receptor. As shown in **Table 4.8-3**, existing noise levels at the Walnut Bluff Site ranged from 61.1 dBA to 70.5 dBA. The noise level increases from truck trips would be below the significance threshold of 80 dBA and would not exceed existing noise levels. Accordingly, off-site construction noise impacts for the Walnut Bluff Site would be less than significant.

Development of the Town Center Northwest Site would require a maximum of 201 worker trips per day and 33 vendor trips per day throughout construction. Vehicle trips which include medium-duty trucks

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14 FHWA, Special Report – Measurement, Prediction, and Mitigation, updated June 2017.  
[https://www.fhwa.dot.gov/Environment/noise/construction\\_noise/special\\_report/hcn04.cfm](https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm). Accessed September 2021.

would generate a maximum noise level of approximately 45.7 dBA, at the nearest sensitive receptor. As shown in **Table 4.8-3**, existing noise levels at the Town Center Northwest Site ranged from 65.4 dBA to 72.7 dBA. The noise level increases from truck trips would be below the significance threshold of 80 dBA and would not exceed existing noise levels. Accordingly, off-site construction noise impacts for the Town Center Northwest Site would be less than significant.

Development of the Heritage Square Site would require a maximum of 66 worker trips per day, 15 vendor trips per day, and 63 total haul trips throughout construction. Vehicle trips which include medium- and heavy- duty trucks would generate a maximum noise level of approximately 41.0 dBA, at the nearest sensitive receptor. As shown in **Table 4.8-3**, existing noise levels at the Heritage Square Site ranged from 52.0 dBA to 76.3 dBA. The noise level increases from truck trips would be below the significance threshold of 80 dBA and would not exceed existing noise levels. Accordingly, off-site construction noise impacts for the Heritage Square Site would be less than significant.

## ***Operation***

### **Roadway Noise**

**Table 4.8-13: Off-Site Roadway Traffic Noise Impacts—Existing Baseline Plus Project** presents the estimated off-site traffic noise levels from the Project. As shown in **Table 4.8-13**, AM roadway noise level increases ranged from a low of 0 dBA to a high of 0.7 dBA along Walnut Avenue south of Spring Street (Intersection 6). Moreover, PM roadway noise level increases ranged from a low of 0 dBA to a high of 0.6 dBA along Walnut Avenue south of Spring Street (Intersection 6). As such, the Project would not result in a 3 dBA increase at any of the study intersections. Accordingly, roadway noise impacts due to the Project would be less than significant.

### **Fixed-Mechanical Equipment Noise**

The Project would introduce various stationary noise sources, including HVAC systems. All mechanical equipment would be required to be designed with appropriate noise-control devices, such as sound attenuators, acoustics louvers, or sound screens/parapet walls, to comply with noise-limitation requirements provided in Chapter 9.16 of the SHMC. The City's existing General Plan policies would protect residents from excessive stationary noise sources and ensure new land uses meet the SHMC's noise standards through evaluation and design considerations. Thus, stationary and other sources of noise would be controlled by General Plan goals and policies, and the SHMC, which limit allowable noise levels at adjacent properties. Therefore, through compliance with the requirements in Chapter 9.16 of the SHMC and building permit approval subsequent to the City's development review process, operation of mechanical equipment for the Project would be designed to not exceed the City's threshold of significance and impacts would be less than significant.

**Table 4.8-13**  
**Off-Site Roadway Traffic Noise Impacts—Existing Baseline Plus Project**

Intersection	Roadway Segment	Time Period	Existing Baseline (2021) Without Project	Existing Baseline (2021) With Project	Change	Significant Impact
			(dBA)			
Orange Avenue						
1	North of 32 <sup>nd</sup> Street	AM	63.2	63.3	+0.1	No
		PM	63.6	63.7	+0.1	No
	South of 32 <sup>nd</sup> Street	AM	59.5	59.7	+0.2	No
		PM	60.1	60.3	+0.2	No
2	North of I-405 Southbound Ramps	AM	54.8	55.0	+0.2	No
		PM	55.5	55.7	+0.2	No
	South of I-405 Southbound Ramps	AM	55.5	55.7	+0.2	No
		PM	56.1	56.3	+0.2	No
3	North of Spring Street	AM	56.9	57.1	+0.2	No
		PM	57.4	57.6	+0.2	No
	South of Spring Street	AM	66.1	66.4	+0.3	No
		PM	66.2	66.5	+0.3	No
4	North of Willow Street	AM	59.1	59.3	+0.2	No
		PM	59.3	59.6	+0.3	No
	South of Willow Street	AM	66.5	66.6	+0.1	No
		PM	66.8	66.8	0.0	No
5	North of Burnett Street	AM	57.3	57.4	+0.1	No
		PM	57.5	57.6	+0.1	No
	South of Burnett Street	AM	66.0	66.1	+0.1	No
		PM	66.1	66.1	0.0	No
32 <sup>nd</sup> Street						
1	East of Orange Avenue	AM	55.7	55.9	+0.2	No
		PM	56.8	57.0	+0.2	No
	West of Orange Avenue	AM	51.9	51.9	0.0	No
		PM	50.7	50.7	0.0	No
I-405 Southbound Ramps						
2	East of Orange Avenue	AM	N/A	N/A	N/A	No
		PM	N/A	N/A	N/A	No
	West of Orange Avenue	AM	57.1	57.3	+0.2	No
		PM	55.3	55.6	+0.3	No
Spring Street						
3	East of Orange Avenue	AM	61.9	62.0	+0.1	No
		PM	61.9	62.0	+0.1	No
		AM	67.7	67.7	0.0	No

Intersection	Roadway Segment	Time Period	Existing Baseline (2021) Without Project	Existing Baseline (2021) With Project	Change	Significant Impact	
			(dBA)				
6	West of Orange Avenue	PM	68.1	68.1	0.0	No	
	East of Walnut Avenue	AM	53.5	53.7	+0.2	No	
		PM	53.9	54.0	+0.1	No	
	West of Walnut Avenue	AM	56.0	56.1	+0.1	No	
		PM	56.4	56.5	+0.1	No	
9	East of Cherry Avenue	AM	59.0	59.1	+0.1	No	
		PM	58.9	59.0	+0.1	No	
	West of Cherry Avenue	AM	53.7	53.9	+0.2	No	
		PM	53.8	54.0	+0.2	No	
	Willow Street						
	4	East of Orange Avenue	AM	69.2	69.3	+0.1	No
PM			70.2	70.3	+0.1	No	
West of Orange Avenue		AM	58.3	58.4	+0.1	No	
		PM	59.0	59.1	+0.1	No	
7	East of Walnut Avenue	AM	62.2	62.3	+0.1	No	
		PM	63.2	63.3	+0.1	No	
	West of Walnut Avenue	AM	66.5	66.6	+0.1	No	
		PM	67.4	67.5	+0.1	No	
10	East of Cherry Avenue	AM	56.7	56.8	+0.1	No	
		PM	57.7	57.8	+0.1	No	
	West of Cherry Avenue	AM	58.8	59.0	+0.2	No	
		PM	59.5	59.6	+0.1	No	
Burnett Street							
5	East of Orange Avenue	AM	49.5	49.5	0.0	No	
		PM	48.5	48.5	0.0	No	
	West of Orange Avenue	AM	58.3	58.3	0.0	No	
		PM	57.2	57.2	0.0	No	
8	East of Walnut Avenue	AM	58.9	58.9	0.0	No	
		PM	58.9	58.9	0.0	No	
	West of Walnut Avenue	AM	59.9	59.9	0.0	No	
		PM	58.9	58.9	0.0	No	
11	East of Cherry Avenue	AM	46.3	46.3	0.0	No	
		PM	47.5	47.5	0.0	No	
	West of Cherry Avenue	AM	59.4	59.5	+0.1	No	
		PM	58.9	59.0	+0.1	No	
Walnut Avenue							
6	North of Spring Street	AM	45.0	45.0	0.0	No	
		PM	46.6	46.6	0.0	No	

			Existing Baseline (2021) Without Project	Existing Baseline (2021) With Project		
Intersection	Roadway Segment	Time Period	(dBA)		Change	Significant Impact
	South of Spring Street	AM	47.9	48.6	+0.7	No
		PM	49.3	49.9	+0.6	No
7	North of Willow Street	AM	53.7	53.9	+0.2	No
		PM	54.9	55.1	+0.2	No
	South of Willow Street	AM	59.5	59.5	0.0	No
		PM	60.5	60.6	+0.1	No
8	North of Cherry Avenue	AM	54.9	54.9	0.0	No
		PM	55.9	55.9	0.0	No
	South of Cherry Avenue	AM	54.0	54.0	0.0	No
		PM	54.2	54.2	0.0	No
Cherry Avenue						
9	North of Spring Street	AM	55.6	55.6	0.0	No
		PM	55.9	55.9	0.0	No
	South of Spring Street	AM	54.8	54.9	+0.1	No
		PM	55.3	55.3	0.0	No
10	North of Willow Street	AM	55.2	55.3	+0.1	No
		PM	55.7	55.8	+0.1	No
	South of Willow Street	AM	56.2	56.3	+0.1	No
		PM	56.6	56.7	+0.1	No
11	North of Burnett Street	AM	60.5	60.5	0.0	No
		PM	60.9	60.9	0.0	No
	South of Burnett Street	AM	64.5	64.5	0.0	No
		PM	64.8	64.8	0.0	No

Source: Based on Signal Hill Housing Element Transportation Impact Analysis, Ganddini Group, Inc., dated August 21, 2021.  
Roadway noise model results are provided in **Appendix G**.

#### Threshold IV. NOI-2: Generation of excessive groundborne vibration or groundborne noise levels?

**Table 4.8-14: On-Site Construction Vibration Impacts–Building Damage** presents the construction vibration impacts associated with on-site construction in terms of building damage. As shown in **Table 4.8-14**, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold of 0.2 PPV ips for the nearest sensitive receptors surrounding the Housing Sites during construction. Due to the distance of the identified sensitive receptors, on-site construction vibration would not result in a significant vibration impact with regard to building damage. Impacts related to building damage from on-site construction vibration would not be considered significant.

**Table 4.8-14**  
**On-Site Construction Vibration Impacts—Building Damage**

Housing Site	Nearest Sensitive Receptor	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from Construction Equipment					Significance Threshold (PPV ips)
		Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Small bulldozer	
Orange Bluff	Recreational use to the west along Orange Avenue (55 feet)	0.064	0.011	0.027	0.027	0.001	0.2
Walnut Bluff	Residential uses to the south along E. Willow Street (100 feet)	0.026	0.011	0.011	0.010	0.000	0.2
Town Center Northwest	Residential uses to the south along E. Willow Street (170 feet)	0.012	0.005	0.005	0.004	0.000	0.2
Heritage Square	Residential uses to the west along Rose Avenue (30 feet)	0.160	0.068	0.068	0.058	0.002	0.2

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment

Source: Refer to **Appendix G** for construction vibration worksheets.

## 4. CUMULATIVE IMPACTS

### Construction

Cumulative construction noise impacts have the potential to occur when multiple construction projects in close proximity generate noise concurrently. Noise impacts are localized in nature and decrease with distance such that construction not within close proximity would not have a cumulative effect.

As mentioned previously, Chapter 9.16.050 the SHMC exempts construction activities from the chapter's provisions during daytime hours when these activities would occur. Specifically, Section 9.16.050 of the SHMC states no person shall carry on any construction activities, including the erection, demolition, excavation, modification, alteration or repair of any building or structures, or any other activities creating construction noise as defined in this section other than between the hours of 7:00 AM and 6:00 PM on weekdays.

The Housing sites are not expected to be constructed simultaneously and there are no known projects immediately adjacent to the Housing Sites that are expected to be built concurrently. Therefore, the construction noise of the Project would not have a considerable contribution to cumulative effects.

## Operational Noise

Mechanical equipment for the Project and related projects would be required to be designed with appropriate noise-control devices, such as sound attenuators, acoustics louvers, or sound screens/parapet walls, to comply with noise-limitation requirements provided in Chapter 9.16 of the SHMC. As discussed previously, the City's existing General Plan policies would protect residents from excessive stationary noise sources and ensure new land uses meet the SHMC's noise standards through evaluation and design considerations. Thus, stationary and other sources of noise would be controlled by General Plan goals and policies and the SHMC, which limits allowable noise levels at adjacent properties. Accordingly, it is not anticipated that a significant cumulative increase in permanent ambient noise levels would occur and, therefore, the impact would be less than significant. Therefore, the Project's contribution to cumulative operational noise impacts would not be cumulatively considerable.

## Vehicle Noise

Cumulative noise impacts due to off-site motor vehicle travel during Project operations at buildout were analyzed by comparing the projected increase in traffic noise levels from General Plan Buildout (Year 2041) Without Project conditions to General Plan Buildout (Year 2041) With Project conditions. General Plan Buildout traffic represents the future traffic volumes under buildout of the current General Plan and Housing Element. **Table 4.8-15: Off-Site Roadway Traffic Noise Impacts—Cumulative** presents the estimated cumulative off-site traffic noise levels. As shown in **Table 4.8-15**, AM roadway noise level increases ranged from a low of 0 dBA to a high of 0.5 dBA along Walnut Avenue south of Spring Street (Intersection 6). Moreover, PM roadway noise level increases ranged from a low of 0 dBA to a high of 0.5 dBA along Walnut Avenue south of Spring Street (Intersection 6). As such, the Project would not result in a 3 dBA increase at any of the study intersections. Accordingly, cumulative roadway noise impacts due to the Project would be less than significant.

**Table 4.8-15**  
**Off-Site Roadway Traffic Noise Impacts – Cumulative**

			General Plan Buildout (Year 2041) Without Project	General Plan Buildout (Year 2041) With Project		
Intersection	Roadway Segment	Time Period	(dBA)		Change	Significant Impact
Orange Avenue						
1	North of 32 <sup>nd</sup> Street	AM	64.2	64.2	0.0	No
		PM	64.6	64.6	0.0	No
	South of 32 <sup>nd</sup> Street	AM	60.7	60.8	+0.1	No
		PM	61.3	61.4	+0.1	No
2	North of I-405 Southbound Ramps	AM	56.0	56.1	+0.1	No
		PM	56.7	56.8	+0.1	No



			General Plan Buildout (Year 2041) Without Project	General Plan Buildout (Year 2041) With Project		
Intersection	Roadway Segment	Time Period	(dBA)		Change	Significant Impact
3	South of I-405 Southbound Ramps	AM	56.8	57.0	+0.2	No
		PM	57.4	57.6	+0.2	No
	North of Spring Street	AM	58.2	58.4	+0.2	No
		PM	58.7	58.9	+0.2	No
	South of Spring Street	AM	67.6	67.7	+0.1	No
		PM	67.7	67.9	+0.2	No
4	North of Willow Street	AM	60.5	60.6	+0.1	No
		PM	60.8	60.9	+0.1	No
	South of Willow Street	AM	67.6	67.7	+0.1	No
		PM	67.9	68.0	+0.1	No
5	North of Burnett Street	AM	58.4	58.5	+0.1	No
		PM	58.6	58.7	+0.1	No
	South of Burnett Street	AM	67.2	67.3	+0.1	No
		PM	67.3	67.4	+0.1	No
32 <sup>nd</sup> Street						
1	East of Orange Avenue	AM	56.9	57.1	+0.2	No
		PM	58.2	58.3	+0.1	No
	West of Orange Avenue	AM	52.7	52.7	0.0	No
		PM	51.5	51.5	0.0	No
I-405 Southbound Ramps						
2	East of Orange Avenue	AM	N/A	N/A	N/A	No
		PM	N/A	N/A	N/A	No
	West of Orange Avenue	AM	58.4	58.5	+0.1	No
		PM	56.8	57.0	+0.2	No
Spring Street						
3	East of Orange Avenue	AM	63.1	63.2	+0.1	No
		PM	63.1	63.2	+0.1	No
	West of Orange Avenue	AM	68.9	68.9	0.0	No
		PM	69.2	69.3	+0.1	No
6	East of Walnut Avenue	AM	54.7	54.8	+0.1	No
		PM	55.1	55.2	+0.1	No
	West of Walnut Avenue	AM	57.2	57.3	+0.1	No
		PM	57.5	57.6	+0.1	No
9	East of Cherry Avenue	AM	60.2	60.2	0.0	No
		PM	60.0	60.1	+0.1	No
	West of Cherry Avenue	AM	54.9	55.0	+0.1	No
		PM	55.0	55.1	+0.1	No
Willow Street						
4	East of Orange Avenue	AM	70.3	70.4	+0.1	No
		PM	71.3	71.4	+0.1	No
	West of Orange Avenue	AM	59.3	59.4	+0.1	No
		PM	60.1	60.1	0.0	No
7	East of Walnut Avenue	AM	63.2	63.3	+0.1	No
		PM	64.1	64.2	+0.1	No
	West of Walnut Avenue	AM	67.5	67.6	+0.1	No
		PM	68.4	68.5	+0.1	No

Intersection	Roadway Segment	Time Period	General Plan Buildout (Year 2041) Without Project	General Plan Buildout (Year 2041) With Project	Change	Significant Impact
			(dBA)			
10	East of Cherry Avenue	AM	57.8	57.9	+0.1	No
		PM	58.8	58.8	0.0	No
	West of Cherry Avenue	AM	59.8	59.9	+0.1	No
		PM	60.5	60.6	+0.1	No
Burnett Street						
5	East of Orange Avenue	AM	50.9	50.9	0.0	No
		PM	50.1	50.1	0.0	No
	West of Orange Avenue	AM	59.3	59.3	0.0	No
		PM	58.2	58.2	0.0	No
8	East of Walnut Avenue	AM	60.5	60.5	0.0	No
		PM	60.6	60.6	0.0	No
	West of Walnut Avenue	AM	61.3	61.3	0.0	No
		PM	60.5	60.5	0.0	No
11	East of Cherry Avenue	AM	47.2	47.2	0.0	No
		PM	48.4	48.4	0.0	No
	West of Cherry Avenue	AM	60.3	60.4	+0.1	No
		PM	59.9	60.0	+0.1	No
Walnut Avenue						
6	North of Spring Street	AM	46.0	46.0	0.0	No
		PM	47.5	47.5	0.0	No
	South of Spring Street	AM	48.9	49.4	+0.5	No
		PM	50.2	50.7	+0.5	No
7	North of Willow Street	AM	54.7	54.8	+0.1	No
		PM	55.8	56.0	+0.2	No
	South of Willow Street	AM	60.6	60.7	+0.1	No
		PM	61.7	61.7	0.0	No
8	North of Cherry Avenue	AM	55.9	55.9	0.0	No
		PM	56.9	56.9	0.0	No
	South of Cherry Avenue	AM	55.0	55.0	0.0	No
		PM	55.2	55.2	0.0	No
Cherry Avenue						
9	North of Spring Street	AM	56.5	56.5	0.0	No
		PM	56.8	56.8	0.0	No
	South of Spring Street	AM	55.8	55.8	0.0	No
		PM	56.3	56.3	0.0	No
10	North of Willow Street	AM	56.2	56.2	0.0	No
		PM	56.7	56.7	0.0	No
	South of Willow Street	AM	57.3	57.3	0.0	No
		PM	57.6	57.7	+0.1	No
11	North of Burnett Street	AM	61.5	61.5	0.0	No
		PM	61.9	61.9	0.0	No
	South of Burnett Street	AM	65.5	65.5	0.0	No
		PM	65.8	65.8	0.0	No

Source: Based on Signal Hill Housing Element Transportation Impact Analysis, Ganddini Group, Inc., dated August 21, 2021.  
Roadway noise model results are provided in **Appendix G**.

## 5. MITIGATION MEASURES

### MM N-1 Construction Noise

In the event construction noise levels increase to or within the “generally unacceptable” or “land use discouraged” land use compatibility for residential uses, the Applicant must utilize, without limitation, the following construction best management practices:

- Shroud or shield all impact tools, and muffle or shield all intake and exhaust port on power equipment to reduce construction noise by 10 dB or more.
- If feasible, schedule grading activities so as to avoid operating numerous pieces of heavy-duty off-road construction equipment (e.g., backhoes, dozers, excavators, loaders, or rollers) simultaneously in close proximity to the boundary of properties of off-site noise sensitive receptors surrounding a Housing Site to reduce construction noise levels by approximately 5 to 10 dBA.
- Where feasible, temporary barriers including, without limitation, sound blankets on existing fences and walls, or freestanding portable sound walls, must be placed as close to the noise source or as close to the receptor as possible and break the line of sight between the source and receptor where modeled levels exceed applicable standards.

## 6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

As shown in **Table 4.8-12**, construction noise levels at the Orange Bluff Site and Heritage Square Site would result in a maximum increase of outdoor noise levels up to 7.1 dBA and 12.4 dBA over the significance threshold, respectively. Implementation of **MM N-1** requires use of optimal muffler systems that would reduce construction noise levels by approximately 10 dB or more. Additionally, scheduling grading activities to avoid operating numerous pieces of heavy-duty off-road construction equipment (e.g., backhoes, dozers, excavators, loaders, or rollers) simultaneously in close proximity to the boundary of properties of off-site noise sensitive receptors surrounding a Housing Site to reduce construction noise levels by approximately 5 to 10 dBA. A temporary noise barrier can achieve a 5 dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver.<sup>15</sup> Consequently, **MM N-1** would reduce maximum construction noise levels at the Orange Bluff Site and Heritage Square Site to below the significance threshold. As such, impacts would be less than significant with mitigation.

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15 FHWA, Special Report – Measurement, Prediction, and Mitigation, [https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction\\_noise/special\\_report/hcn00.cfm](https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/special_report/hcn00.cfm). Accessed September 2021.

### 1. INTRODUCTION

This section provides an overview of existing population and housing in the City of Signal Hill (City) and evaluates the potential for implementation of the Project, including the potential development of the Housing Sites. The potential for impacts includes the effect on the availability, service level, and/or capacity of population and housing. If population and housing would be affected by the Project, analysis would require assessing whether new or expanded facilities would be required and whether impacts would result from these facilities. This section discusses how the City identifies forecasted growth in population, housing and employment, and it discusses why the Southern California Association of Governments is the City's primary source for current and forecasted population, housing and employment numbers.

### 2. ENVIRONMENTAL SETTING

#### Existing Conditions

##### *Regional Setting*

The City is located in the SCAG region, which is the largest MPO in the country, including approximately 19 million people.<sup>1</sup> The region contains six counties: Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County. Today, the region contains 6 million households and 8 million jobs. While the growth trend has slowed in recent years due to a combination of factors, the region's population continues to grow at approximately 0.85% annually, or by approximately 161,500 people annually. Population growth is projected to slow, but continued growth through 2045 is expected. This population growth in turn translates into continued growth for the number of households and jobs in the region.

The Project is located within the County of Los Angeles (County). According to SCAG's Demographics and Growth Forecast, in 2020, the County had a population of approximately 10,407,000 people.<sup>2</sup> It is estimated that population will increase to 11,674,000 people by 2045.<sup>3</sup> In 2020, the estimated number of

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1 SCAG. Connect SoCal- The 2020-2045 RTP/SCS.

<https://www.census.gov/quickfacts/fact/table/signalhillcitycalifornia,US/PST045219>. March 4, 2021.

2 Southern California Associations of Governments, Connect SoCal Demographics and Growth Forecast Technical Report (September 2020). Final Connect SoCal Demographics and Growth Forecast Adopted September 3, 2020. Accessed May 2021.

3 Southern California Associations of Governments, Connect SoCal Demographics and Growth Forecast Technical Report (September 2020). Final Connect SoCal Demographics and Growth Forecast Adopted September 3, 2020. Accessed May 2021.

households in the County is 3,472,000 and are expected to increase to 4,119,000 households by 2045.<sup>4</sup> This represents a 12% increase in population and a 19% increase in household size.

### ***Local Setting***

The City includes approximately 2.2 square miles on top of a hill with a panoramic view of neighboring communities, including the City of Long Beach, which surrounds the City. SCAG's latest regional growth forecast, completed in 2020, forecasts the most likely growth scenario taking into consideration of local and regional growth policies, reasonable key technical assumptions, and recent and past trends.<sup>5</sup>

The 2020-2045 RTP/SCS includes a demographics' section which compiles forecast data for population, housing and employment in the region, including data for the City of Signal Hill. **Table 4.9-1: Signal Hill Subregion Population and Households Forecasts** presents the City's past and existing population estimates and forecast population through the year 2045. As indicated in **Table 4.9-1**, the City's estimated 2016 population was approximately 11,600 persons. Based on SCAG's forecasts, The City's population is expected to increase by approximately 900 people by 2045 representing a 7.8% increase between 2016 and 2045.

The existing and forecast trend of housing are also shown in **Table 4.9-1** from 2016 through 2045. The estimated number of households in the City is approximately 4,300 in 2016 and is expected to increase by 500 households by 2045 to 4,800 households. The increase of households from 2016 to 2045 is approximately 12%. The estimated household size in the City is 2.43. Lastly, there are approximately 16,900 jobs in the City which is estimated to increase by 8.9% between 2016 and 2045, representing a 1,500 increase in employment opportunities. An estimated 18,400 total jobs will be available in the City of Signal Hill.

As indicated in **Table 4.9-1: Signal Hill Subregion Population, Households, and Employment Forecasts**, the local population, number of households, and number of jobs in Signal Hill is predicted to undergo sustained and continual growth through the year 2045.

4 Southern California Associations of Governments, Connect SoCal Demographics and Growth Forecast Technical Report (September 2020). Final Connect SoCal Demographics and Growth Forecast Adopted September 3, 2020. Accessed May 2021.

5 Southern California Associations of Governments, Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (September 2020). <https://scag.ca.gov/read-plan-adopted-final-plan>. Accessed May 2021.

**Table 4.9-1**  
**Signal Hill Subregion Population, Households and Employment**

	2016	2045	Growth 2016–2045	Growth 2016–2045 %
Population	11,600	12,500	900	7.8%
Households	4,300	4,800	500	12%
Employment	16,900	18,400	1,500	8.9%

### 3. REGULATORY SETTING

#### State

##### ***California State Housing Law***

California State Housing Law (California Government Code Article 10.6) establishes the requirements for the Housing Element of the General Plan, one of the seven mandatory General Plan Elements. State law requires that Housing Elements identify and analyze existing and projected housing needs and provide goals, policies, objectives, financial resources, and programs for the preservation, improvement, and development of housing (Government Code §65580). The Housing Element identifies ways in which housing needs of current and future residents can be met. The California Legislature has determined that one of the State’s primary housing goals is to ensure every resident has a decent home and suitable living environment.

Government Code §65588 requires that local governments review and revise the Housing Element of their comprehensive General Plans not less than once every eight years. For each review cycle, the California Department of Housing and Community Development (HCD) conducts a regional housing needs assessment (RHNA). The regional council of governments planning body, such as GCCOG for the Signal Hill area, then determines the RHNA methodology for distribution throughout the region and allocates a final RHNA to each local jurisdiction. Each local jurisdiction then updates their General Plan Housing Element to incorporate their share of the RHNA.

##### ***State Bill 166: No Net Loss Law***

SB 166 (2017) requires a city or county to ensure that its Housing Element inventory can accommodate its share of the regional housing need throughout the planning period. It prohibits a city or county from reducing, requiring, or permitting the reduction of the residential density to a lower residential density than what was utilized by HCD for certification of the Housing Element, unless the City or county makes written findings supported by substantial evidence that the reduction is consistent with the adopted general plan, including the Housing Element. In such cases, any remaining sites identified in the HEU must

be adequate to accommodate the jurisdictions share of the regional housing need. A city or county may reduce the residential density for a parcel only if it identifies sufficient sites remaining within the Housing Element, as replacement sites, so that there is no net loss of residential unit capacity. The City planned for additional units as a buffer and planned contingency if necessary to address SB 166 requirements of the “no net loss” provisions if it becomes necessary to identify a replacement site during the HEU.

### ***California Relocation Assistance Act***

The California Relocation Assistance Act (Government Code §7260 et seq.) establishes uniform policies to provide for the fair and equitable treatment of people displaced from their homes or businesses as a direct result of state and/or local government projects or programs. The California Relocation Assistance Act requires that comparable replacement housing be made available to displaced persons within a reasonable period of time prior to the displacement. Displaced persons or businesses are assured payment for their acquired property at fair market value. Relocation assistance in the form of advisory assistance and financial benefits would be provided at the local level. This includes aid in finding a new home location, payments to help cover moving costs, and additional payments for certain other costs.

### ***Implementation of Housing Law***

SB 375 extended the time for a local government to review and revise Housing Elements (i.e., the RHNA planning process) from five years to eight years in certain areas within the State, including nonattainment regions covered by an MPO. SB 375 requires the development of an eight-year program that includes a schedule of actions, with timetables for each action, during the program period. If the local agency fails to submit a valid Housing Element, it is subject to a four-year review cycle.

### ***Rezoning***

If a community does not have enough sites to accommodate its housing need, it must adopt a program to make adequate sites available, including a program for rezoning sites to provide lower-income housing. Prior to the adoption of SB 375, cities were only required to identify actions and develop programs that would be undertaken assist in the accommodation of various housing needs and the building of housing sites. With the adoption of SB 375 however, cities are required to complete all required zoning modifications concurrent with the preparation and adoption of the Housing Element update, in order to make available adequate sites to accommodate the RHNA allocation of housing units. The rezoning action must include "minimum density and development standards" for all identified sites, and, for sites designated for very low and low-income housing, rezoning must provide for "by right" zoning at certain minimum densities, with no discretionary approvals allowed except for design review and subdivision map approval. CEQA review cannot be required unless a subdivision map is needed. The programmed rezoning must be completed within certain time frames.

## ***Southern California Association of Governments***

Pursuant to federal and State law, SCAG serves as a Council of Governments, Regional Transportation Planning Agency, and the Metropolitan Planning Organization for Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties. SCAG’s mandated responsibilities include developing plans and policies with respect to the region’s population growth, transportation programs, air quality, housing, and economic development.

Specifically, SCAG is responsible, in coordination with other State and local agencies, for preparing the Regional Transportation Plan (RTP) and the RHNA. These documents include population, employment, and housing projections for the region and its 13 subregions.

### **2020 – 2045 Regional Transportation Plan/Sustainable Communities Strategy**

The 2020 – 2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is an update to the 2016–2045 RTP/SCS that reflects changes in economic, policy, and demographic conditions.<sup>6</sup> Similarly, SCAG adopted the 2020-2045 RTP/SCS, also known as Connect SoCal, on September 3<sup>rd</sup>, 2020. The 2020—2045 RTP/SCS focuses on a more prosperous mobile approach through implementing planning strategies that focus on transportation networks.<sup>7</sup> The 2020—2045 RTP/SCS core vision centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs and transit closer together and increasing investment in transit and complete streets.<sup>8</sup>

Likewise, the goals of the 2020 RTP/SCS have remained unchanged from the goals presented in the 2016–2045 RTP/SCS. The goals of the 2020 RTP/SCS include the following: (1) improve regional economic development and competitiveness; (2) maximize mobility and accessibility in the region; (3) improve travel safety and reliability in the region; (4) preserve and ensure a sustainable regional transportation system; (5) maximize productivity of the transportation system; (6) improve air quality and encourage active transportation; (7) encourage and creative incentives for energy efficiency; (8) encourage land use and growth patterns that facilitate transit and active transportation; and (9) maximize the security of the regional transportation system. However, since the adoption of the 2016–2040 RTP/SCS, the development of the 2020 RTP/SCS has been influenced by (1) a surface and transportation funding and authorization bill known as the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was signed into law

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6 Southern California Associations of Governments, Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (September 2020). <https://scag.ca.gov/read-plan-adopted-final-plan>. Accessed May 2021.

7 Southern California Associations of Governments, Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (September 2020). <https://scag.ca.gov/read-plan-adopted-final-plan>. Accessed May 2021.

8 Southern California Associations of Governments, Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (September 2020). <https://scag.ca.gov/read-plan-adopted-final-plan>. Accessed May 2021.



by President Barack Obama on July 6, 2012; (2) the rapid advancement of new technologies that encourage more efficient transportation choices, such as multimodal transportation systems; and (3) the continuing emphasis on the reduction of greenhouse gas (GHG) emissions as a result of the April 29, 2015, Executive Order B-30-15,<sup>8</sup> which establishes a Statewide GHG reduction target of 40 percent below 1990 levels by 2030. The guiding policies for the 2020 RTP/SCS are intended to focus future investments on the best-performing projects and strategies to preserve, maintain, and optimize the performance of the existing transportation system.

### ***Housing Site Inventory***

State housing element law mandates a City to set aside inventory sites for housing development to assist the City in meeting the RHNA allocation. Housing site inventory are specific sites or parcels that are deemed available for residential development according to the HCD. Land deemed suitable for residential development must be appropriate and available for residential use in the planning period and can include vacant sites and sites with the potential for redevelopment.<sup>9</sup> Combined, these sites must provide enough potential for housing development in order to cover the RHNA allocation of 517 housing units assigned to the City. AB 686 requires each site to be analyzed for consistency with fair housing goals and AB 1397 requires each site be assessed for its realistic development capacity.

To ensure sufficient capacity is available to meet the RHNA allocation for the Housing Element planning period, the HCD recommends the cities allocate at least 15 to 30 percent additional units in capacity than the required inventory stipulated by the RHNA allocation. Consistent with this recommendation, four housing site inventories (Housing Site) has been identified in the 2021-2029 Housing Element with a residential development capacity to accommodate up to 724 units.

## **Local Setting**

### ***Regional Housing Needs Assessment***

SCAG prepares the RHNA as mandated by State law as part of the periodic updating of the Housing Elements of General Plans by local jurisdictions. The RHNA identifies the housing needs for very low income, low-income, moderate-income, and above moderate-income groups. The final 6<sup>th</sup> cycle RHNA allocation method was adopted in March 5, 2020, resulting in the publication of the draft RHNA allocation estimates on September 3<sup>rd</sup>, 2020. The City and Counties within SCAG's region have an opportunity to the appeals process beginning on September 11<sup>th</sup>, 2020. The final RHNA allocation numbers were adopted on March 4, 2021 and further updated on July 1, 2021. HCD provided its approval for the Final RHNA

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9 California Department of Housing and Community Development. Inventory of Suitable Land. <https://www.hcd.ca.gov/community-development/building-blocks/site-inventory-analysis/inventory-of-land-suitable.shtml>. Accessed March 17, 2021.

Allocation Plan on March 22, 2021.<sup>10</sup> This allocation identifies housing needs for the planning period between October 2021 and October 2029. Local jurisdictions are required by State law to update their General Plan Housing Elements based on the most recently adopted RHNA allocation.

## 4. ENVIRONMENTAL IMPACTS

### *Thresholds of Significance*

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to population and housing if it would:

**Threshold POP-1: Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

### *Methodology*

This analysis considers the State CEQA Guidelines, Appendix G thresholds, as described above, in determining whether the 2021-2029 Housing Element update, including potential future development identified by the update, would result in a substantial temporary or permanent impact to the City's population or housing characteristics. The evaluation was based on a review of regulations in determining their applicability to the 2021-2029 Housing Element update. Population and housing information was acquired through consultation with City staff and review of existing publicly available data and documents. The determination that the 2021-2029 Housing Element update would or would not result in "substantial" temporary or permanent impacts to population and housing considers the relevant policies and regulations established by local and regional agencies and the 2021-2029 Housing Element update's compliance with such policies.

### *Environmental Impacts*

**Threshold POP-1: Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

The 2021-2029 Housing Element update does not approve or provide design plans for any physical development. Future housing development facilitated by the 2021-2029 Housing Element update would be subject to discretionary permits and would occur as market conditions allow and at the discretion of

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<sup>10</sup> Southern California Association of Governments (SCAG), Regional Housing Needs Assessment (RHNA) & Housing. [www.scag.ca.gov/programs/Pages/Housing.aspx](http://www.scag.ca.gov/programs/Pages/Housing.aspx).

the individual property owners. Therefore, the 2021-2029 Housing Element update would not induce population growth in the City directly or indirectly.

The 2021-2029 Housing Element update would identify a series of implementing actions to increase the City's housing capacity. However, any future housing development facilitated by the 2021-2029 Housing Element update would occur in urbanized locations near existing infrastructure (roads, utilities) and within an existing service area by fire and other emergency responders. Given these conditions and the City's existing development and housing occupancy patterns, it is not anticipated future housing development facilitated by the 2021-2029 Housing Element update would induce population growth indirectly through extension of roads or other infrastructure.

However, to meet the City's RHNA allocation of 517 dwelling units (DUs), the 2021-2029 Housing Element update would identify a series of implementing actions to increase housing capacity that would induce some planned population growth in the City. As discussed earlier, SCAG forecasts the City is expected to see an increase of households by 12% or 500 households. Regardless, even when considering the greater increase in the number of households to the area, as required by State law to accommodate the City's RHNA allocation of 517 DUs for the 6<sup>th</sup> Cycle Housing Element, the corresponding population growth would be relatively small and would not be considered "unplanned" population growth. As shown in **Table 4.9-2: Population And Household Increase From Housing Element Update**, the 2021-2029 Housing Element update would result in an estimated 4,817 households in 2045, 17 DUs over the 4,800 households over the SCAG's household forecast for 2045. The 17 additional DUs over the SCAG estimate would account for approximately 3 percent of additional housing units at full project build out which is within the slight variation in forecasting and would not be considered "unplanned".

The forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update would be an estimated 1,355 persons at the completion of 517 DUs.<sup>11</sup> Including the forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update, the City's population would total approximately 12,955 persons.<sup>12</sup> As shown in **Table 4.9-2**, the City's forecast population including future housing development facilitated by the 2021-2029 Housing Element update of approximately 12,955 persons would be a less than 5% increase over the SCAG's forecast population of 12,500 persons by 2045. Additionally, the housing unit development facilitated by the 2021-2029 Housing Element update would be put in place, in part, to accommodate for an existing shortage of housing for the existing population in the region and within the City limits. As such, the development of housing units facilitated by the 2021-2029 Housing Element update is not anticipated to induce new population growth at the average household size of 2.62 per household. As such, the

11 Calculated from average household population of 2.62 multiplied by 517 units.

12 Adding population of 11,600 in 2016 to 1,355 additional from 2021-2029 Housing Element update.

increase in population at full build out of housing units facilitated by the 2021-2029 Housing Element update would be comparable to the 2045 SCAG population forecast. As previously noted, the HEU update would result in a significant impact if it would “induce substantial unplanned population growth in an area.” The slight variation in population forecasts is not considered substantial given it would occur over an extended period (i.e., 2021 through 2029) and the housing units would be built, in part, to accommodate the existing housing shortage. Additionally, the future housing development facilitated by the 2021-2029 Housing Element update is intended to be dispersed throughout the community to create managed levels of growth in specific areas. The City is mostly developed and existing infrastructure provides essential services citywide. Therefore, the 2021-2029 Housing Element update would not induce substantial unplanned population growth in the City by identifying future actions to increase capacity for the future development of new dwelling units, as necessary to meet State housing law requirements.

**Table 4.9-2**  
**Population And Household Increase From Housing Element Update**

	2016	2045	2045 w/ HEU	% Increase 2045 w/ HEU and 2045 w/o HEU
Population	11,600	12,500	12,955	3.6%
Households	4,300	4,800	4,817	3.4%

\* HEU- Housing Element Update, w/o- without, w/- with

\* The numbers provided in this table are estimates and for analysis purposes only. Population and household forecast trends are subject to changes based on environmental factors and variations. Including unit size.

### Candidate Housing Sites

While the adoption of the 2021-2029 Housing Element would not approve any specific housing developments or result in construction of housing units, candidate housing sites (Housing Sites) has been selected as part of the Housing Element in accordance with Government Code Section 65583.2. The 2021-2029 Housing Element identifies four Housing Sites and conducted a feasibility study to determine the maximum number of housing that could be constructed at each site. While the maximum amount of housing for each site are provided as part of the analysis, the City is only required to construct 517 units to satisfy the RHNA allocation assigned to the City. **Table 4.9-3: Maximum Units Per Candidate Housing Site** shows the maximum number of housing units that would be constructed at each housing site if a development application is submitted for each site and all sites are cleared for development at its maximum build out with full occupancy.

**Table 4.9-3**  
**Maximum Units Per Candidate Housing Site**

Candidate Housing Site	Maximum Housing Units	Maximum Population At Each Site
Orange Bluff	295	773
Town Center Northwest	267	700
Walnut Bluff	90	236
Heritage Square	72	189

*\* Although the table displays a combined housing unit over 517 units, the City is only required to construct 517 units to satisfy the RNHA requirement. Therefore, the combined population forecast for all candidate housing sites is above the anticipated real population growth from compliance with the Housing Element and State law.*

*\* The numbers provided in this table are estimates and for analysis purposes only. Population and household forecast trends are subject to changes based on environmental factors and variations. Including unit size.*

*\* Population estimate are based on an average household size of 2.62 person per household.*

Based on the analysis provided, the adoption of the 2021-2029 Housing Element and compliance with RHNA allocation required unit developments would be within the reasonable range of SCAG's population forecast. Therefore, anticipated population increase based on compliance with the 6<sup>th</sup> Cycle RHNA allocation would not be considered "unplanned" or substantial. Development at the identified Housing Sites would be located in urbanized areas with existing public services and no expansion of existing public services facilities or utility provisions are anticipated. Development of the Housing Sites would also be subject to discretionary permits and required development fees from the City for the maintenance of any existing facilities. Additionally, housing development would be subject to compliance with all Federal, State, and local requirements for minimizing growth-related impacts such as the California Green Building Standards Code to conserve available resources. Therefore, a less than significant impact would occur, and no mitigation is required.

## **5. MITIGATION MEASURES**

Project impacts to population and housing is less than significant. No mitigation measures are required.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Project impacts to population and housing is less than significant. No mitigation measures are required.

### 1. INTRODUCTION

This section provides an overview of existing public services in the City of Signal Hill and evaluates the potential for implementation of the 2021-2029 Housing Element Update (Project), including potential housing development on Candidate Housing Sites (Housing Sites). The potential for impacts includes the effect on the availability, service level, and/or capacity of public services, including fire-protection services, police-protection services, parks and recreation, and public schools. If public services would be affected by the Project, analysis would require assessing whether new or expanded facilities would be required and whether impacts would result from these facilities. The primary source of information used for this analysis comes from Request for Fire Protection Services Information, Request for Parks and Facilities Information, Request for School Facility Information, and Request for Sheriff Protection Services Information prepared by Meridian Consultants dated April 16, 2021; Response to the Request for Fire Protection Services Information Letter prepared by the Chief of Forestry Division Prevention Services Bureau dated May 26, 2021; and Response to the Request for Parks and Facilities Information prepared by Colleen T. Doan, Community Development Director of the City of Signal Hill dated April 21, 2021.

### 2. ENVIRONMENTAL SETTING

#### Fire Protection

Fire protection services for the City are provided by the Los Angeles County Fire Department (LACoFD). The nearest fire station to the Housing Sites is County Fire Department Station No. 60, located at 2300 E 27th Street in the City.<sup>1</sup> This station is approximately 0.9 miles east of Orange Bluff, 0.6 miles east of Walnut Bluff, 0.6 miles east of Town Center Northwest, and 0.7 miles southwest of Heritage Square. Fire protection services provided include fire suppression and protection, emergency medical services, response to vehicle accidents and hazardous incidents, and safe haven services within the City. Station No. 60 is staffed with a four-person paramedic engine company which consists of one Fire Captain, one Fire Fighter Specialist, and two Fire Fighter Paramedics. The estimated response time for this station is up to three to four minutes to any location in the City.

The LACoFD also has mutual aid agreement with the City of Long Beach which provides Fire Station No. 7 as a second station which may provide assistance if necessary. It is located at 2295 Elm Avenue, Long Beach, CA 90806. Station No. 7 is staffed with a four-person paramedic assessment engine company which consists of one Fire Captain, one Engineer, one Fire Fighter Paramedic, and one Fire Fighter, and a four

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1 Ronald M. Durbin, Chief, Forestry Division Prevention Services Bureau, Email Correspondence, May 26, 2021.

person truck which consists of one Fire Captain, one Engineer, and two Fire Fighters. This station is approximately 1.3 miles east of Orange Bluff, 1.4 miles east of Walnut Bluff, 1.7 miles east of Heritage Square, and 2.0 miles east of Town Center Northwest. The estimated response time for this station is between five to seven minutes.

Station No. 60 is part of Battalion 9, which includes nine fire stations located in the cities of Bellflower, Cerritos, Hawaiian Gardens, Lakewood, and Paramount.<sup>2</sup> In addition to Station No. 7, the Long Beach Fire Department operates fire stations near the boundaries of Signal Hill and can respond to calls for service if needed. The following fire stations are within the area of Signal Hill as described by the Signal Hill General Plan Safety Element:

- No. 122 – 1.2 miles from City
- No. 45 – 2.9 miles from City
- No. 9 - 0.8 miles from City
- No. 17 – 0.9 miles from City

## Police Protection

Police protection services for the City are provided by the Los Angeles Police Department (LAPD) through the Signal Hill Police Department (SHPD), which operates from 2745 Walnut Avenue. This station is located approximately 450 feet north of Sites Orange Bluff, Walnut Bluff, Town Center Northwest and approximately 0.7 miles northwest of Heritage Square. The SHPD employs 34 sworn officers and 19 civilian staff and the station includes a fully functional Emergency Operations Center (EOC).<sup>3</sup> Mutual aid agreements with the Long Beach Police Department and the L.A. County Sheriff's Department allow these facilities to assist the City in the event of a major crime or natural disaster if needed. Other existing facilities outside of the City, but within the area include the East Patrol Division (0.4 miles from the City boundary) and North Patrol Division (1.8 miles from the City Boundary) stations in the City of Long Beach.

## Schools

The City is part of the Long Beach Unified School District (LBUSD) which provides two elementary schools (Alvarado Elementary School and Signal Hill Elementary School) and one middle school (Jessie Nelson Academy) to the City. Alvarado Elementary School is located at 1900 E. 21st Street approximately 0.74

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2 City of Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/DocumentCenter/View/2557/Safety-Element-2016?bidId=>, accessed May 2021.

3 City of Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/DocumentCenter/View/2557/Safety-Element-2016?bidId=>, accessed May 2021.

miles southeast of the Orange Bluff Site, 0.68 miles southeast of the Walnut Bluff Site, 0.65 miles south of the Town Center North Site, and 0.40 miles south of the Heritage Square Site. Signal Hill Elementary is located at 2285 Walnut Avenue approximately 0.4 miles south of the Orange Bluff Site, the Walnut Bluff Site, and the Town Center North Site, and is 0.20 miles south west of the Heritage Square Site. Jessie Nelson Academy is located at 1951 Cherry Avenue approximately 0.80 miles south east of the Orange Bluff Site, 0.76 miles south of the Walnut Bluff Site and Town Center North Site, and is 0.5 miles south of the Heritage Square Site.

To identify school needs, the LBUSD developed a comprehensive districtwide Facilities Master Plan (FMP). The FMP creates a plan for the future investment of each educational facility within the LBUSD. According to the most recent 2016 FMP Update, the projected number of enrolled students for the year 2025 is 67,613 students.<sup>4</sup> The number of students projected to be enrolled during 2020 was 69,634. In the 2019-2020 school year, Alvarado Elementary had 388 students enrolled in K-5, Signal Hill Elementary had 739 total students enrolled in K-5, and Nelson Academy had a total 814 students enrolled within grades 6-8.<sup>5</sup> Alvarado Elementary school has a permanent building capacity of 489 students, Signal Hill Elementary has a capacity of 319, and Jessie Nelson Academy has a capacity of 850. Based on the projected District-wide decrease in the number of students enrolled, there will be excess capacity in some campuses and the FMP will focus on rehabilitating existing campuses.

## Parks

The Parks and Recreation Department provides park and recreational services to the City and maintains ten total parks inside the City boundaries. In addition to dedicated parks within the City, the three elementary schools located within the boundaries of the City and schools within on half mile of City boundaries in Long Beach Unified School District also contribute 64.74 acres of open space to the City.<sup>6</sup> The total acres of park space available to the City equal 93.6.<sup>7</sup> The City is also in the process of developing the View Park Project which would establish additional acreage and include seating for viewing opportunities, a landscaped trail for pedestrian access, and vehicular access for adjacent oil well operators.<sup>8</sup>

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4 LBUSD, Facility Master Plan (Update 2016), <https://lbschoolbonds.net/pdfs/LBUSD-Facility-Master-Plan-Update-2016.pdf>. Accessed July 2021.

5 California Department of Education, School Accountability Report Card (SARC), <https://admin.sarconline.org/Home>. Accessed July 2021.

6 City of Signal Hill General Plan, Environmental Resources Element, <https://www.cityofsignalhill.org/DocumentCenter/View/310/Environmental-resources-element?bidId=>, accessed May 2021.

7 L.A. County Park Needs, Los Angeles Countywide Comprehensive Park and Recreation Needs Assessment, <https://lacountyparkneeds.org/final-report/>, accessed May 2021.

8 City of Signal Hill, Parks & Facilities, <https://www.cityofsignalhill.org/143/Park-Locations>, accessed May 2021.



## Other Public Facilities

The Signal Hill Public Library serves the City and is a single branch located at 1770 E Hill Street. The library recently opened in 2019 and consists of two floors with 16,146 square feet interior and a 4,260 square foot terrace.<sup>9</sup> The library supports reading, research, technology access, and reservable space for community gatherings.<sup>10</sup> The service area for the library includes the entire City of Signal Hill whose population is expected to increase to 12,500 by 2045.<sup>11</sup> The other public facilities within the City include community and youth centers which provide community events, special events, youth and teen programs, volunteer programs, and senior services for all residents.<sup>12</sup>

## 3. REGULATORY SETTING

### *State Setting*

#### **Occupational Safety and Health Administration**

The California Occupational Safety and Health Administration (OSHA) enforces the provisions of the State Occupational Safety and Health Act, which requires implementation of safety and health regulations under Title 24 of the California Code of Regulations (CCR). Examples of general requirements related to fire protection and prevention include maintaining fire suppression equipment specific to a project site; providing a temporary or permanent water supply of sufficient volume, duration, and pressure; properly operating on-site fire-fighting equipment (e.g., sprinklers); and keeping sites free from the accumulation of unnecessary combustible materials.

#### **California Office of Emergency Services**

The California Emergency Management Agency was incorporated into the Governor's Office on January 1, 2009, by Assembly Bill (AB) 38 (Nava), and merged the duties, powers, purposes, and responsibilities of the Governor's Office of Emergency Services (OES) with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall state agency response to major disasters in support of local government. The agency is responsible for ensuring the state's readiness to respond to and recover from all hazards—natural, man-made, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

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9 Colleen Doan, Community Development Director, Email Correspondence, April 21, 2021, Appendix 5.12.3.

10 City of Signal Hill, Community Services/Parks & Recreation, <https://www.cityofsignalhill.org/119/Signal-Hill-Public-Library>. Accessed July 2021.

11 SCAG, 2020-2045 SCAG RTP/SCS, Demographics, [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial\\_demographics-and-growth-forecast.pdf?1606001579](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_demographics-and-growth-forecast.pdf?1606001579), Accessed May 2021.

12 Signal Hill General Plan, Parks and Recreation Master Plan (2021), January 2021.

The Cal OES Fire and Rescue Division coordinates statewide response of fire and rescue mutual aid resources to all types of emergencies, including hazardous materials incidents. The Operations Section under the Fire and Rescue Division coordinates the California Fire and Rescue Mutual Aid System, and coordinated response through the Mutual Aid System includes responses to major fires, earthquakes, tsunamis, hazardous materials, and other disasters.

### **California Building Code**

The California Building Standards Code (CBSC), in Part 2 of Title 24 of the CCR identifies building design standards, including those for fire safety. The CBSC is based on the International Building Code but has been amended for California conditions. The CBSC is updated every three years, and the current 2019 CBSC went into effect on January 1, 2020. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the CBSC. Typical fire safety requirements of the CBSC include the installation of fire sprinklers in all new residential, high-rise, and hazardous materials buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

### **California Fire Code**

The California Fire Code (CFC), contained in Part 9 of Title 24 of the CCR, incorporates by adoption the International Fire Code of the International Code Council, with California amendments. The CFC is updated every three years, and the current 2019 CFC went into effect on January 1, 2020. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. The CFC regulates building standards in the CBSC, fire department access, fire protection systems and devices, fire and explosion hazards safety, hazardous materials storage and use, and standards for building inspection.

### **California Construction Article XIII, Section 35**

Section 35 of Article XIII of the California Constitution at Subdivision (a)(2) provides: “The protection of public safety is the first responsibility of local government and local officials have an obligation to give priority to the provision of adequate public safety services.” Section 35 of Article XIII of the California Constitution was adopted by the voters in 1993 under Proposition 172. Proposition 172 directed the proceeds of a 0.50-percent sales tax to be expended exclusively on local public safety services. California Government Code Sections 30051-30056 provide rules to implement Proposition 172. Public safety services include fire protection. Section 30056 mandates that cities and counties are not allowed to spend

less of their own financial resources on their combined public safety services in any given year compared to the 1992-93 fiscal year. Therefore, an agency is required to use Proposition 172 to supplement its local funds used on fire protection services, as well as other public safety services. In *City of Hayward v. Board of Trustees of California State University* (2015) 242 Cal. App. 4th 833, the court found that Section 35 of Article XIII of the California Constitution requires local agencies to provide public safety services, including fire protection and emergency medical services, and that it is reasonable to conclude that the county will comply with that provision to ensure that public safety services are provided.<sup>13</sup>

### **California Government Code Section 65995 (b) and Education Code Section 17620**

SB 50 amended California Government Code §65995, which contains limitations on Education Code §17620, the statute that authorizes school districts to assess development fees within school district boundaries. Government Code §65995(b)(3) requires the maximum square footage assessment for development to be increased every two years, according to inflation adjustments. In March 2021, the State Allocation Board (SAB) approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from \$21,715 per unit to \$21,910 per unit for single-family and \$14,977 per unit to \$15,112 per unit for multi-family residential per square foot of assessable space of 500 square feet or more. School districts may levy high fees if they apply to the SAB and meet certain conditions.

### **California Government Code, Section 66477 (Quimby Act)**

The goal of the Quimby Act is to require developers to help mitigate the impacts of property improvements.<sup>14</sup> The Act gives authority for passage of land dedication ordinances only to cities and counties. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services communitywide. The act states that the dedication of land or the payment of fees shall not exceed the amount necessary to provide three acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the legislative body decides to increase the amount to a higher standard such as 5 acres per 1,000 residents.

## ***Local Setting***

### **Signal Hill General Plan**

#### ***Safety Element***

The General Plan Safety Element is intended to provide the City with background information on hazards and public safety services, and establish goals, policy direction, and implementation measures intended

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<sup>13</sup> City of Hayward v. Board Trustee of California State University (2015) 242 Cal. App. 4th 833, 847.

<sup>14</sup> Assembly Bill 1191, Ch. 276, Quimby Act.

to limit the community's exposure to a range of hazards.<sup>15</sup> The following goals and policies are applicable to the proposed Project:

- Policy 1 c:** Regulate the location, use, storage, and transportation of hazardous and toxic materials and protect the public from these hazards.
- Policy 1 g:** Regulate the amount and type of new development in areas susceptible to fire hazards.
- Policy 1 h:** As development and population growth occurs, review service levels and adjust service accordingly to meet the demands of continued growth and development, tourism, and other factors which could change fire-rescue service needs.
- Policy 1 k:** Regulate development in Alquist-Priolo Earthquake Fault Zones consistent with levels of acceptable risk. Require the submission of geologic and seismic reports, as well as soils engineering reports, in relation to applications for land development permits whenever seismic or geologic problems are suspected.

### ***Signal Hill Municipal Code***

The Signal Hill Municipal Code is a City adopted set of codes that establish and organize the many facets of City-wide activities. This code includes the procedures and fees associated with development within the City and the requirements for necessitating safe and correct procedures for development.

## **4. ENVIRONMENTAL IMPACTS**

### ***Thresholds of Significance***

- Threshold PUB-1:** Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?

### ***Methodology***

This analysis considers the State CEQA Guidelines Appendix G Thresholds as described above in determining whether the Project, including possible future development, would result in impacts related

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15 City of Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/DocumentCenter/View/2557/Safety-Element-2016?bidId=>. Accessed July 2021.

to public services. Evaluation of potential public service impacts are based on applicable City standards policies and a review of documents pertaining to the proposed Project, including the City's General Plan.

Since the adoption of the 2021-2029 Housing Element would not approve any development projects or propose any specific development, no impacts to public services is anticipated. However, the following analysis assess for the impacts of development taking place over the identified Housing Sites to help determine the feasibility for development at each identified sites in accordance with Government Code Section 65583.2(c).

Impacts on public services would result from the development of the Housing Sites were identified by comparing existing service capacity and facilities against future need for new or renovated facilities due to the development of the Housing Sites, the construction of which could have physical effects on the environment.

### ***Environmental Impacts***

**Threshold PUB-1:**      **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:**

#### **a) Fire Protection?**

The nearest fire station to the Housing Sites is County Fire Department Station No. 60, located approximately 0.8 miles east of Orange Bluff, Walnut Bluff, Town Center Northwest and Heritage Square is approximately 0.6 miles southwest of the fire station. As previously mentioned, the adoption of the Project would not approve of any housing development. All future housing development at the identified Housing Sites would be subject to discretionary actions by the City. For analysis purposes, full development of the Housing Sites would add approximately 1,355 residents to the area.

The Housing Sites are located within the City of Signal Hill which contracts fire protection services with the LACoFD. Project applicants are required to submit project plans to the LACoFD for review and approval with respect to applicable fire protection standards set forth in Title 32 Section 105.7 of the Los Angeles County Municipal Code.<sup>16</sup> LACoFD approval is required prior to the issuance of building permits. Through this routine process, the LACoFD confirms that the project is designed in conformance with the applicable

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<sup>16</sup> Los Angeles County, Code of Ordinances, Title 32, Sec. 105.7.

safety codes and would have a sufficient fire flow and emergency access for fire engines and crews. No additional crew would be required to cover the development of Housing Sites.

A request for information was sent to the Los Angeles County Fire Department on April 16, 2021<sup>17</sup> and a response from the department was received on May 26, 2021.<sup>18</sup> The response concluded that no significant impacts would occur as a result of development of the Housing Sites. However, future development would be required to comply with all applicable code and ordinance requirements for construction, access, water main, fire flows, and fire hydrants.

### **b) Police Protection**

Police protection services for the City are provided by the Signal Hill Police Department (SHPD). The station is located at 2745 Walnut Avenue, approximately 0.09 miles east of Orange Bluff, 0.07 miles north of Walnut Bluff, 0.03 miles northwest of Town Center Northwest, and 0.7 miles northwest of Heritage Square. The City also has mutual aid agreements with the Long Beach Police Department, Los Angeles County Sheriff's Department, and other regional law enforcement agencies.<sup>19</sup> These agreements allow for assistance from other agencies in the event of a major crime or natural disaster that could not effectively be handled with the resources available to the SHPD.

A request for information from the City of Signal Hill Police Department was sent on April 16, 2021.<sup>20</sup> A response has not been received. As stated above, full development of the Housing Sites would add approximately 1,355 residents to the area. Given the City's access to additional police services support through mutual aid agreement with LBPD, the projected additional population created by the development of the Housing Sites would not induce a need for additional police protection services. Additionally, future goals within the General Plan Safety Element for the City include on-going provisions for assessing adequate supply of protection services by determining deficiencies during emergency testing exercises and adopting objectives based on time standards for all fire, rescue, and emergency response services. With these goals in mind for the City, the potential future growth with the development of the Housing Sites would continue to receive adequate service from the local and associated police departments. As such, impacts would be less than significant.

**Mitigation Measures:** No mitigation measures required.

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17 Meridian Consultants, Los Angeles Fire Department Email Correspondence, April 16, 2021.

18 Ronald M. Durbin, Chief, Forestry Division Prevention Services Bureau, Email Correspondence, May 26, 2021.

19 Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/DocumentCenter/View/2557/Safety-Element-2016?bidId=>. Accessed July 2021.

20 Meridian Consultants, Signal Hill Police Department Email Correspondence, April 16, 2021.

### c) Schools

The City is a part of the LBUSD which provides Alvarado Elementary School, Signal Hill Elementary School, and Jessie Elwin Nelson Academy (middle school) to the City. A request for information was sent to the Long Beach Unified School District on April 16, 2021 and a response has not yet been received.<sup>21</sup> As previously stated, adoption of the 2021-2029 Housing Element would not approve or result in any physical changes or development projects. As such, adoption of the 2021-2029 Housing Element would not require additional school capacity to accommodate. However, future development of the Housing Sites would add additional residents to the area and generate new students.

According to the most recent 2016 FMP Update, the projected number of total enrolled students for the year 2025 would be 67,613 students.<sup>22</sup> The number of students projected to be enrolled during 2020 was 69,634. Alvarado Elementary school has a building capacity of 532 students,<sup>23</sup> Signal Hill Elementary has a capacity of 914, and Jessie Nelson Academy has a capacity of 850.<sup>24</sup> In the 2019-2020 school year, Alvarado Elementary had 388 students enrolled in K-5 consisting of approximately 73 percent total capacity, Signal Hill Elementary had 739 total students enrolled in K-5 for approximately 81 percent total capacity, and Nelson Academy had a total 814 students enrolled within grades 6-8 for approximately 96 percent capacity.<sup>25</sup> Based on the projected District-wide decrease in the number of students enrolled, there will be excess capacity in some campuses and the FMP will focus on rehabilitating existing campuses. As stated in **Section 4.9: Population and Housing** of this Draft EIR (DEIR), the additional housing units at full project buildout would constitute a 3 percent increase in projected units. Compliance with 6<sup>th</sup> Cycle RHNA allocation of 517 additional units to be developed would result in a total of 4,817 households, approximately 17 households over the 4,800 households over the SCAG's household forecast for 2045, which is within the variation of forecast and would not be an excessive increase of households. The forecast population growth resulting from future housing development facilitated by the 2021-2029 Housing Element update would be an estimated 1,355 persons at the completion of 517 DUs.<sup>26</sup> Assuming 1.8 students are generated by each household (based on the 2010 total fertility rate in Los Angeles County<sup>27</sup>) an additional 931 students would be generated during operation of the 517 DUs in compliance

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21 Meridian Consultants, Long Beach Unified School District Email Correspondence, April 16, 2021.

22 LBUSD, Facility Master Plan (Update 2016), <https://lbschoolbonds.net/pdfs/LBUSD-Facility-Master-Plan-Update-2016.pdf>. Accessed July 2021.

23 Includes permanent building and portable building capacity.

24 LBUSD, Facility Master Plan, (2008), [https://www.lbschools.net/Asset/files/School\\_Building\\_Plan/Final\\_MP/lbusd\\_final\\_master\\_plan\\_2008.pdf](https://www.lbschools.net/Asset/files/School_Building_Plan/Final_MP/lbusd_final_master_plan_2008.pdf). Accessed July 2021.

25 California Department of Education, School Accountability Report Card (SARC), <https://admin.sarconline.org/Home>. Accessed July 2021.

26 Calculated from average household population of 2.62 multiplied by 517 units.

27 Los Angeles County. Public Health. Recent Birth Trends in Los Angeles County. [http://www.publichealth.lacounty.gov/epi/docs/birth\\_trends\\_health\\_brief\\_final.pdf](http://www.publichealth.lacounty.gov/epi/docs/birth_trends_health_brief_final.pdf). April 2015.

with 6<sup>th</sup> Cycle RHNA. Not all households are anticipated to have children of school attending age and the total fertility rate is in decline so the estimated number of students are conservative and likely to decrease overtime. Additionally, additional students would be spread out in age group and be absorbed into different local schools. As such, the increase in enrollment facilitated by the development of Housing Sites in compliance with 6<sup>th</sup> Cycle RHNA allocation would be accommodated over the LBUSD campuses serving the City of Signal Hill.

California Code of Regulations Section 65995<sup>28</sup> and California Education Code Section 17620<sup>29</sup> allow school districts to levy fees on residential and/or commercial/industrial construction projects within a school district's boundaries. The State Allocation Board (SAB) sets the per-square-foot Level I school impact fees (developer fees) which are updated every two years. Pursuant to Education Code Section 17620 and Government Code Sections 65995(b), LBUSD collects Statutory School Fees (Level 1 Developer Fees) for residential development. With the adoption of SB 50 and Proposition 1A in 1998 and meeting the requirements, the District exercised the option of adopting Alternative School Fees (Level 2 and 3 Developer Fee).<sup>30</sup> Current impact fees for LBUSD consist of \$0.70 per square foot for commercial/industrial development and \$21,910/unit for single-family residential and \$15,112 per unit for multi-family residential.<sup>31</sup> Future development of either residential or commercial units would be required to pay development fees and be in receipt of a Certificate of Compliance from the LBUSD prior to the issuance of building permits.

According to the FMP, enrollment within the LBUSD has been decreasing consistently over the years leaving some campuses with excess capacity.<sup>32</sup> As such and given that there are no identified projected capacity deficiencies within the LBUSD and the applicant is subject to the payment of the applicable developer fee to account for students potentially generated by the development of the Housing Sites, impacts to school services would be less than significant.

#### **d) Parks**

As mentioned previously, the adoption of the 2021-2029 Housing Element would not approve of any housing development. However, development of the Housing Sites would add 517 units and approximately 1,355 new residents to the area which would potentially result in increased usage of

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28 Code of Regulations, Title 7, Ch. 4.9, Sec. 65995.

29 Education Code, Title 1, Ch. 6, Sec. 17620.

30 LBUSD, Facility Master Plan (Update 2016), <https://lbschoolbonds.net/pdfs/LBUSD-Facility-Master-Plan-Update-2016.pdf>. Accessed July 2021.

31 City of Signal Hill, Building Safety, Development Impact Fees, <https://www.cityofsignalhill.org/115/Fees>. Accessed July 2021.

32 LBUSD, Facility Master Plan (Update 2016), <https://lbschoolbonds.net/pdfs/LBUSD-Facility-Master-Plan-Update-2016.pdf>. Accessed July 2021.



existing parks. In the most recent Parks and Recreation Master Plan released 2021, the park space per 1,000 residents goal is 4 acres of open space per 1,000 population.<sup>33</sup> When considering only parks within the City of Signal Hill, the 2020 level of service was 1.52 park acres per 1,000 residents, for a total deficiency of 40.9 acres. When including 25 percent of City of Long Beach parks within one-half mile of the city boundary, current population level of service increases to 3.69 acres per 1,000 residents, and the park acreage deficiency decreases to 15.4 acres. The City also requires an impact fee from residential development to go towards parks and recreation in the City as outlined in the City's Municipal Code.<sup>34</sup> A Park Development Fee analysis was conducted in compliance with the Quimby Act and it was determined, with the population projections conducted, that a \$7,700/unit park and recreational fee would be required to acquire and develop the required park land to meet the City's acres of park land to 1,000 population ratio.<sup>35</sup> An increase in local housing needs has since then been assessed in the updated 2021 Parks and Recreation Master Plan and the parks and recreation fee has since then been adjusted to meet inflation and to continue to adequately address park land needs in the City. Pursuant to Chapter 21.40.030 of the Signal Hill Municipal Code, multifamily residential developments are required to pay park fees at \$15,112/unit prior to the issuance of a certificate of occupancy in 2021.<sup>36</sup> This fee is intended to be used for the acquisition, improvement, and expansion of public parks and/or recreational facilities.

A request for information was sent to the Signal Hill Department of Community Services on April 16, 2021.<sup>37</sup> A response was received on April 22<sup>nd</sup>, 2021 with reference to the publicly available 2021 Parks Master Plan. Additionally, the Initial Study (IS) (see **Appendix A**) for the Project identified that recreation resources within the City would not be significantly impacted as a result of the Housing Site developments. As such, no additional analysis is required.

### e) Other Public Facilities

The City is currently served by a single library branch (Signal Hill Public Library) and provides community centers within the City that offer programs and events for all residents. A request for information was sent to the Signal Hill Department of Community Services on April 16, 2021.<sup>38</sup> A response was received on April 21<sup>st</sup>, 2021.<sup>39</sup> The response provided information on the newly renovated Signal Hill Public Library

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33 Signal Hill General Plan, Parks and Recreation Master Plan (2021), January 2021.

34 Signal Hill Municipal Code, Title 21, Ch. 21.40, Sec. 21.40.020.

35 City of Signal Hill. Parks and Recreation Master Plan. January 2021.

36 City of Signal Hill Municipal Code, Ch. 21, Sec. 21.40.030.

37 Meridian Consultants, Signal Hill Department of Community Services Email Correspondence, April 16, 2021.

38 Meridian Consultants, Signal Hill Department of Community Services Email Correspondence, April 16, 2021.

39 Colleen T. Doan, Community Development Director of the City of Signal Hill, April 21, 2021.

which is stated to include two-stories with a total of 16,146 square feet of interior and 4,260 square feet terrace.

Future Housing Site development would generate population growth as previously mentioned. According to **Section 4.9** contained in this DEIR, development of the Housing Sites would result in an estimated 517 additional households with approximately 17 dwelling units (DUs) over the 4,800 households over the SCAG's household forecast for 2045. The 17 additional DUs over the SCAG estimate would account for approximately 3 percent of additional housing units at full Housing Site build out. The forecast population at compliance with 6<sup>th</sup> RHNA Cycle would be an estimated 1,355 persons at the completion of 517 DU's. Based on the data provided above the number of additional units would be within the variations of forecast data and any increase above the SCAG estimated forecast increase would be negligible. As a result the Housing Site developments would produce a negligible increased burden on facility use as only a small percentage of the residents would visit a particular facility on a given day. As such, compliance with the 6<sup>th</sup> Cycle RHNA and the development of Housing Sites would not result in a need to construct new types of other public facilities. Impacts to these facilities would be less than significant.

## **5. MITIGATION MEASURES**

The proposed Project would have a less than significant impact on public services. Therefore, no mitigation measures would be required.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

The proposed Project would have a less than significant impact on public services. Therefore, no mitigation measures would be required.

### 1. INTRODUCTION

This section evaluates potential impacts concerning transportation and traffic that could result from the 2021-2029 Housing Element update (2021-2029 Housing Element) (Project), including housing development on the candidate housing sites (Housing Sites) facilitated by the Project. This section describes the existing environmental and regulatory settings concerning transportation and traffic. This section also evaluates the potential for the Project to cause significant environmental impact due to a conflict with existing transportation plans or mitigation measures mitigating environmental effects. The primary source of information used for this analysis comes from the Signal Hill Housing Element Transportation Impact Analysis prepared by Ganddini Group, Inc. (see **Appendix H: Transportation Impact Analysis**).

### 2. ENVIRONMENTAL SETTING

#### Existing Facilities

Regional access to the project area is provided by Interstate 405 (I-405) to the north and Interstate 710 (I-710) to the west. The key north-south roadways providing local circulation in the study area include Orange Avenue, Walnut Avenue, and Cherry Avenue. The key east-west roadways providing local circulation in the study area include 32nd Street, Spring Street, Willow Street, and Burnett Street.

#### *Existing Street System*

The principal local roadway network serving the project site includes Interstate 405 (I-405), Spring Street, Willow Street, Cherry Avenue, 32<sup>nd</sup> Avenue, Orange Avenue, and Burnett Street. The following summarizes the roadways that provide access to the project site:

**I-405** is a 10-lane freeway (include two High Occupancy Vehicle (HOV) lanes) through the project study area providing regional north-south access through Southern California from its southern terminus at the Interstate 5 junction in Irvine to its northern terminus at the Interstate 5 junction near San Fernando.

**Spring Street** is a four-lane divided roadway with a painted two-way left-turn lane median in the project vicinity. City of Signal Hill General Plan classifies Spring Street as a Principal Arterial (100 to 110-foot right-of-way). On-street parking is generally permitted on Spring Street except west of Orange Avenue. There are no dedicated bicycle lanes on Spring Street through the study area (except west of Orange Avenue). Sidewalks are currently provided on both sides of Spring Street in the study area.

**Willow Street** is a six-lane divided roadway in the project vicinity. The City of Signal Hill General Plan classifies Willow Street as a Principal Arterial (100 to 110-foot right-of-way). On-street parking is prohibited on Willow Street. There are no dedicated bicycle lanes on Willow Street in the study area. Sidewalks are currently provided on both sides of Willow Street within the study area except for an approximately 600-foot segment along of the westbound approach at Walnut Avenue.

**Cherry Avenue** is a six-lane divided roadway from the north study area limits to Willow Street. Cherry Avenue transitions to a four-lane divided roadway between Willow Street and Burnett Street. The City of Signal Hill General Plan classifies Cherry Avenue as a Principal Arterial (100 to 110-foot right-of-way). On-street parking is prohibited along both sides of Cherry Avenue. There are no dedicated bicycle lanes on Cherry Avenue in the study area; however, sidewalks are currently provided along both sides of the roadway.

**32<sup>nd</sup> Street** is a two-lane undivided roadway in the project vicinity. The City of Signal Hill General Plan classifies 32<sup>nd</sup> Street as a Collector (60- to 70-foot right-of-way). On-street parking is generally permitted on 32<sup>nd</sup> Street. There are no dedicated bicycle lanes on 32<sup>nd</sup> Street in the study area. Sidewalks are provided on both sides of 32<sup>nd</sup> Street west of Orange Avenue and on the north side east of Orange Avenue.

**Orange Avenue** is a two-lane undivided roadway north of 32<sup>nd</sup> Street, three- to four-lane divided roadway between 32<sup>nd</sup> Street and Spring Street, three-lane divided roadway (two-lanes southbound, one lane northbound) with a painted two-way left-turn lane median between Spring Street and Willow Street, and a two-lane divided roadway with a painted two-way left-turn lane median south of Willow Street. The City of Signal Hill General Plan classifies Orange Avenue as a Minor Arterial (80-foot right-of-way) north of the I-405 Southbound Ramps and a Principal Arterial (100- to 110-foot right-of-way). On-street parking is prohibited between 32<sup>nd</sup> Street and Willow Street. There are no dedicated bicycle lanes on Orange Avenue in the project vicinity. There is no sidewalk on the west side of Orange Avenue between Spring Street and Willow Street and on the east side of Orange Avenue from Willow Street to approximately 1,600 feet north of Willow Street.

**Burnett Street** is a two-lane undivided roadway in the project vicinity. The City of Signal Hill General Plan classifies Burnett Street as a Collector (60- to 70-foot right-of-way). On-street parking is generally permitted on Burnett Street. There are no dedicated bicycle lanes on Burnett Street in the project vicinity. Sidewalks are provided on both sides of Burnett Street west of Orange Avenue, intermittently between Orange Avenue and Walnut Avenue, and on the south side of Burnett Street east of Cherry Avenue; there are no sidewalks provided along undeveloped frontage between Walnut Avenue and Cherry Avenue.

### ***Existing Public Transit***

Services provided by Long Beach Transit and Metro operate within or in the vicinity of the city; additional bus lines are accessible through the nearby Long Beach Transit Mall. Long Beach Transit is the primary public transportation provider to Signal Hill. It is a municipal transit agency operated on behalf of the City of Long Beach by a nonprofit corporation, the Long Beach Public Transportation Company. In 2007, Long Beach Transit operated a total of 249 buses on 38 bus routes, providing over 26.6 million passenger trips.<sup>1</sup> Service is provided from approximately 4:30 am to 1:30 am, seven days per week. Long Beach Transit is currently in the process of upgrading its bus stops with satellite-controlled bus tracking technology known as “TranSmart.” TranSmart-equipped stops provide real-time updates on routes and arrival times. Currently, only the stop at the southwest corner of Cherry Avenue and Willow Street has been upgraded; no schedule for improvements to the remaining stops within Signal Hill is currently available. Several Long Beach Transit routes serve the Project sites, including: Routes 71/72 along Orange Avenue, Routes 21/22 along Cherry Avenue, and Route 102/104 along Willow Street.

### ***Existing Bicycle Master Plan***

Prior to the update of the City’s General Plan Circulation Element there were no bikeways designated within the City. With the update in 2009, approximately 5.5 miles of bikeways along a number of routes are planned. These bikeways fall into three classes, as defined by Caltrans:

- **Class I (Bike Path)** Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.
- **Class II (Bike Lane)** Provides a striped land for one-way bike travel on a street or highway.
- **Class III (Bike Route)** Provides for shared use with pedestrian or motor vehicle traffic.

Bikeways provide and encourage an alternative to the use of automobiles. Bikeways are intended to link living, working, shopping, educational, and recreational locations. The bikeways currently proposed serve a number of purposes:

- East-west routes provide access to destinations such as light rail stations, schools, CSULB, Long Beach City College, Long Beach Memorial Medical Center, and shopping centers along Atlantic and Long Beach Boulevards. Recently-widened Spring Street offers adequate space for an on-street bike lane along much of its right-of-way in the city.

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<sup>1</sup> City of Signal Hill General Plan, Circulation Element, <https://www.cityofsignalhill.org/DocumentCenter/View/309/circulation-element?bidId=>. Accessed August 2021.

- North-south routes provide access to destinations such as schools, commercial centers along Pacific Coast Highway, regional bus lines operating on 7th Street, Downtown Long Beach, beaches, civic and arts facilities, and hospitals.
- The route along Temple Street/Skyline Drive/Burnett Street provides panoramic skyline views and is heavily utilized by pedestrians.
- The route along the former Pacific Electric Railway right-of-way provides an off-street bikeway that shortens the distance for travel in a northwest-southeast direction, providing direct access from the Willow Street Blue Line Station to Long Beach City College. This bikeway is located in the city of Long Beach, along its border with Signal Hill.

The Circulation Element recommended that new bikeways should be considered by the City, particularly when they would connect with existing or proposed bikeways in the city of Long Beach. Traffic volumes and characteristics along potential routes must be considered, along with traffic safety and grade issues.

### 3. REGULATORY FRAMEWORK

#### *State Setting*

##### **California Traffic Operations Standards**

On May 20, 2020, Caltrans adopted the Transportation Impact Study Guide for Vehicle Miles Traveled Focused. This document provides Caltrans Districts, lead agencies, tribal governments, developers and consultants regarding Caltrans review of a land use project or plan's transportation analysis using a VMT metric. This guidance document replaces the Guide for the Preparation of Traffic Impact Studies, which is for use with local land use projects.

The 2002 Caltrans Guide for the Preparation of Traffic Impact Studies includes criteria for evaluating the effects of land use development and changes to the circulation system on State highways. Caltrans maintains a target LOS at the transition between LOS C and LOS D for freeway facilities. This document is no longer required by CEQA, but analyzed at the request of Caltrans to confirm the Project would not lead to unacceptable roadway operations. See Appendix 4.11-1 for analysis.

##### **Senate Bill 743**

Senate Bill (SB) 743 (Steinberg) addresses transit-oriented infill projects, judicial review streamlining for environmental leadership development projects, and entertainment and sports center in the City of Sacramento, and was signed into law in 2013.<sup>2</sup> SB 743 directs the Office of Planning and Research (OPR)

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<sup>2</sup> California Legislative Information, Senate Bill No. 743 (September 27, 2013), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140SB743](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB743).

to develop revisions to the CEQA Guidelines that would establish new criteria for determining the significance of transportation impacts. These changes include elimination of auto delay and similar measures of traffic congestion as a basis for determining significant impacts. In addition, SB 743 is intended to redefine the transportation impacts of projects located close to transit.

In January 2016, OPR issued proposed changes to the CEQA Guidelines.<sup>3</sup> These changes state that projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor generally may be considered to have a less than significant transportation impact. In addition, the proposed guidelines advise that Transit Oriented Development (TOD) projects; development projects that result in net decreases in VMT, compared to existing conditions; and land use plans consistent with a Sustainable Communities Strategy (SCS) or that achieve similar reductions in VMT as projected to result from the SCS generally may be considered to have a less than significant impact.<sup>4</sup> In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the Guidelines section implementing Senate Bill 743. Specifically, CEQA Guidelines Section 15064.<sup>5</sup>(Determining the Significance of Transportation Impacts) was added which identifies VMT as the most appropriate measure of the transportation impacts of a project. The provisions of this section apply Statewide on July 1, 2020, and thus are applicable to this Project.

### **Congestion Management Program**

To address public concern that traffic congestion was impacting the quality of life and economic vitality of the State, in 1990, Section 65089 of the California Government Code was adopted to require each county to prepare and adopt a CMP. The intent of the CMP is to provide the analytical basis for transportation decisions. The CMP meets federal requirements for a Congestion Management System (CMS) as required by the Intermodal Surface Transportation Efficiency Act of 1991 and continued in the Transportation Equity Act for the 21st Century in 1998 and SAFE, Accountable, Flexible, and Efficient Transportation Equity ACT— A Legacy for Users. Information regarding the County CMP is provided below.

### **Complete Streets Act**

The Complete Streets Act<sup>6</sup> was signed into law in 2008. This law requires cities and counties, when updating the part of a local general plan that addresses roadways and traffic flows, to ensure that those

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3 California Office of Planning and Research (OPR), Revised Proposal on Updates to CEQA Guidelines on Evaluating Transportation Impacts in CEQA (January 20, 2016), [http://www.opr.ca.gov/docs/Revised\\_VMT\\_CEQA\\_Guidelines\\_Proposal\\_January\\_20\\_2016.pdf](http://www.opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf).

4 OPR, “Transportation Impacts (SB 743),” <http://www.opr.ca.gov/ceqa/updates/sb-743/>.

5 California Legislative Information, Senate Bill No. 743 (September 27, 2013), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140SB743](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB743).

6 Assembly Bill 1358; Government Code Sections 65040.2 and 65302.

plans account for the needs of all roadway users. Specifically, the legislation requires cities and counties to ensure that local roads and streets adequately accommodate the needs of bicyclists, pedestrians, and transit riders, as well as motorists.

## Regional and Local

### SCAG Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the largest metropolitan planning organization in the nation and is responsible for developing a long-range transportation plans and a sustainability strategy for the region. The most recent 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Connect SoCal) charts a path toward a more mobile, sustainable and prosperous region by making key connections between transportation networks, between planning strategies and between people.<sup>7</sup>

Connect SoCal is an important planning document for the region, allowing public agencies who implement transportation projects to do so in a coordinated manner, while qualifying for federal and state funding. The plan includes robust financial analysis that considers operations and maintenance costs to ensure our existing transportation system's reliability, longevity, resilience and cost effectiveness. In addition, Connect SoCal is supported by a combination of transportation and land use strategies that outline how the region can achieve California's greenhouse gas emission reduction goals and federal Clean Air Act requirements. The plan also strives to achieve broader regional objectives, such as the preservation of natural lands, improvement of public health, increased roadway safety, support for the region's vital goods movement industries and more efficient use of resources.

The plan explicitly lays out goals related to housing, transportation technologies, equity and resilience in order to adequately reflect the increasing importance of these topics in the region, and where possible the goals have been developed to link to potential performance measures and targets. The plan's guiding policies take these goals and focus them, creating a specific direction for plan investments. The following goals are included in the 2020-2045 RTP/SCS:

1. Encourage regional economic prosperity and global competitiveness
2. Improve mobility, accessibility, reliability, and travel safety for people and goods
3. Enhance the preservation, security, and resilience of the regional transportation system

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7 Southern California Association of Governments (SCAG), Connect SoCal – 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan\\_0.pdf?1606001176](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan_0.pdf?1606001176). Accessed August 2021.



4. Increase person and goods movement and travel choices within the transportation system
5. Reduce greenhouse gas emissions and improve air quality
6. Support healthy and equitable communities
7. Adapt to a changing climate and support an integrated regional development pattern and transportation network
8. Leverage new transportation technologies and data-driven solutions that result in more efficient travel
9. Encourage development of diverse housing types in areas that are supported by multiple transportation options
10. Promote conservation of natural and agricultural lands and restoration of habitats

### **City of Signal Hill General Plan – Circulation Element**

The City of Signal Hill General Plan Circulation Element was most recently updated in 2009 and establishes guideline and policy direction for the development and maintenance of a comprehensive transportation system for the City. The Circulation Element describes level of service (LOS) as the system that the City of Signal Hill uses to measure the efficiency and performance of traffic operations at a specific location.

### **City of Signal Hill Municipal Code**

**Chapter 21.48** of the Signal Hill Municipal Code states that the City may collect funds for the acquisition, improvement, and expansion of street, parkway, thoroughfare, intersection, and other traffic and circulation improvements. This chapter is intended to authorize reasonable fees to be collected related to new development so that the burdens of installing public improvements, the need for which is created by certain new development projects and which will benefit certain land in addition to such development projects.

**Chapter 13.12** includes measures for construction traffic control to ensure safety during work hours, stating that all work areas, lane closures, and all warning lights, flashers and devices used shall be protected, installed and provided in accordance with the current CALTRANS *Manual of Traffic Controls* and/or *Work Area Traffic Control Handbook*.

## **4. ENVIRONMENTAL IMPACTS**

### ***Thresholds of Significance***

To assist in determining whether the proposed Project would have a significant effect on the environment, the City finds the proposed Project may be deemed to have a significant impact related to transportation/traffic if it would:

- Threshold TRA-1:** Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Threshold TRA-2:** Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- Threshold TRA-3:** Result in inadequate emergency access?

## ***Methodology***

### **Vehicle miles Traveled (VMT) Analysis**

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, recommend the use of Vehicle Miles Travelled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. All agencies and projects State-wide are required to utilize the updated CEQA guidelines recommending use of VMT for evaluating transportation impacts as of July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (State of California, December 2018) [“OPR Technical Advisory”] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

In the absence of VMT guidelines or thresholds established by the City of Signal Hill, a screening assessment for the Housing Sites’ development was performed based on available guidance from the OPR Technical Advisory. As specified in the OPR Technical Advisory, lead agencies may use “screening thresholds” to quickly identify when a project should be expected to cause a less than significant VMT impact. Many agencies have adopted screening thresholds for certain types of projects that may be presumed to result in a less than significant VMT impact because of their size, nature, or location. The

following sections discuss the Housing Sites' development relative to the screening thresholds recommended by the OPR Technical Advisory.

### **Congestion Management Program (CMP) Facilities**

The Los Angeles County 2010 CMP, Appendix D - Guidelines for CMP Transportation Impact Analysis states that:<sup>8</sup>

*In general, a CMP TIA [Transportation Impact Analysis] is required for all projects required to prepare an Environmental Impact Report (EIR) based on local determination. A TIA is not required if the lead agency for the EIR finds that traffic is not a significant issue and does not require local or regional traffic impact analysis in the EIR.*

Furthermore, the Los Angeles County CMP states that the study area for CMP TIA must include the following:

- All CMP arterial monitoring intersections, including freeway on- and off-ramp intersections, where a Housing Sites' development is expected to add 50 or more trips during either the weekday AM or PM peak hours (of adjacent street traffic).
- If CMP arterial segments are being analyzed rather than intersections (see Section D.3), the study area must include all segments where the Housing Sites' development will add 50 or more peak hour trips (total of both directions).
- Mainline freeway monitoring locations where a project is expected to add 150 or more trips, in either direction, during either the weekday AM or PM peak hours.
- Caltrans must also be consulted through the Notice of Preparation (NOP) process to identify other specific locations to be analyzed on the state highway system.

If the TIA identifies no facilities for study based on the above criteria, no further traffic analysis is required. However, projects must still consider transit impacts.

There are no CMP-monitored intersections in the City of Signal Hill. Based on the project trip assignment, the Housing Sites' development is forecast to contribute fewer than 50 weekday peak hour trips to the nearest CMP-monitored intersections or 150 weekday peak hour trips to a mainline freeway monitoring location. Therefore, a CMP impact analysis is not required for this project.

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<sup>8</sup> Los Angeles County Metropolitan Transit Authority, Congestion Management Program (2010), [http://media.metro.net/projects\\_studies/cmp/images/Final\\_Draft\\_2010.pdf](http://media.metro.net/projects_studies/cmp/images/Final_Draft_2010.pdf). Accessed August 2021.

## Environmental Impacts

### Threshold TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The 2020-2045 SCAG RTP/SCS has developed goals related to housing, transportation technologies, equity and resilience in order to adequately reflect the increasing importance of these topics in the region, and where possible the goals have been developed to link to potential performance measures and targets.<sup>9</sup> The plan focuses on a path toward a more mobile, sustainable and prosperous region by making key connections between transportation networks, between planning strategies and between people to create more efficient, safe, and environmentally sound future.

The City of Signal Hill General Plan Circulation Element includes policies addressing new development. The goal stated in the Circulation Element to “Ensure that new development results in the preservation and enhancement of the City” includes the following policies:<sup>10</sup>

- 1.a:** Ensure that necessary circulation system enhancements and expansions occur concurrently with new development and are consistent with the Los Angeles County CMP.
- 1.b:** Require that new development include circulation and utility system improvements, including dedication of land for widening of roadways and pedestrian and bicycle facilities, where appropriate, and construction of new public works facilities reasonably related to the impacts of the development and intended use on the existing systems.
- 1.c:** Develop and improve the circulation and utility systems by identifying and establishing a range of funding sources.
- 1.d:** Limit growth and development when the impacts of growth cannot be mitigated or will overtax the existing systems.
- 1.e:** Strengthen the framework for effective regional and local circulation system planning efforts.
- 1.f:** Ensure that new development provides adequate parking for anticipated uses; however, reductions in parking requirements should be considered where alternative modes of transportation or shared parking opportunities exist.
- 1.g:** Examine shared parking strategies for developments in mixed-use areas.
- 1.h:** Implement a parking management program for existing and new developments considering parking reductions or shared use parking strategies.

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9 SCAG, Connect SoCal – 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan\\_0.pdf?1606001176](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan_0.pdf?1606001176). Accessed August 2021.

10 General Plan, Circulation Element, <https://www.cityofsignalhill.org/85/General-Plan>. Accessed August 2021.

As stated above, a CMP impact analysis is not required for this project so it would not conflict with the City's policies. Additionally, any future development facilitated by the Project would need to comply with the City's policies and guidelines pertaining to circulation to ensure the safe and efficient use of public roadways.

The City's Municipal Code also includes requires new development projects to provide funds for the acquisition, improvement, and expansion of street, parkway, thoroughfare, intersection, and other traffic and circulation improvements.<sup>11</sup> This ordinance is intended to authorize reasonable fees to be collected related to new development so that the burdens of installing public improvements, the need for which is created by certain new development projects and which will benefit certain land in addition to such development projects. In addition to this, measures for construction traffic control must be met to ensure safety during work hours, stating that all work areas, lane closures, and all warning lights, flashers and devices used shall be protected, installed and provided in accordance with the current CALTRANS *Manual of Traffic Controls* and/or *Work Area Traffic Control Handbook*.

Future development on the Housing Sites facilitated by the 2021-2029 Housing Element Update would be subject to discretionary permits and would be required to comply with all applicable City policies and requirements in the 2020-2045 SCAG RTP/SCS, City's General Plan Circulation Element, and the City's Municipal Code. As a result, future housing development on the Housing Sites facilitated by the Project would not conflict with an adopted program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Therefore, impacts would be less than significant.

**Threshold TRA-2: Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?**

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." In December 2018, the California Natural Resources Agency certified and adopted the amendment to the CEQA Guidelines, specifically Section 15064.3, to recommend the use of Vehicle Miles Traveled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or

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11 City Municipal Code, Ch. 21.28.

region. All agencies and projects State-wide are required to utilize the updated CEQA guidelines recommending use of VMT for evaluating transportation impacts as of July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (State of California, December 2018) [“OPR Technical Advisory”] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

In the absence of VMT guidelines or thresholds established by the City of Signal Hill, a screening assessment for the Housing Sites’ development was performed based on available guidance from the OPR Technical Advisory. As specified in the OPR Technical Advisory, lead agencies may use “screening thresholds” to quickly identify when a project should be expected to cause a less than significant VMT impact. Many agencies have adopted screening thresholds for certain types of projects that may be presumed to result in a less than significant VMT impact because of their size, nature, or location. The following sections discuss the Housing Sites’ development relative to the screening thresholds recommended by the OPR Technical Advisory.

#### **2020-2045 RTP/SCS Consistency**

The Housing Sites’ development consists of the 6th Cycle Housing Element update for the City of Signal Hill for compliance with the Regional Housing Needs Assessment (RHNA) allocation provided by the Southern California Association of Governments (SCAG). Since the Housing Sites’ development consists of an update for compliance with RHNA targets provided by SCAG, the Housing Sites’ development is considered to be consistent with the 2020-2045 RTP/SCS.

#### **Affordable Residential Development**

Based on research documented in the OPR Technical Advisory, adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Even in locations with a closer to optimal job-housing match, low-income housing generates less VMT compared to market-rate housing. The OPR Technical Advisory states that evidence supports a presumption of less than significant impact for residential developments consisting of 100 percent affordable housing in infill locations; however, lead agencies may develop their own threshold for residential projects containing a

mix of affordable housing based on local conditions and evidence. A project which includes any affordable residential units may take into account the effect of affordability on VMT generated by those units.

The Housing Sites' development would allow for the development of 724<sup>12</sup> additional housing units, including 161 very low income units and 78 low income units for a total of 239 affordable units (i.e., 33 percent affordable units). **Table 4.11-2** shows a trip generation comparison between market rate and affordable housing based on affordable housing data collected by the Los Angeles Department of Transportation. As shown in **Table 4.11-2**, the Housing Sites' development is estimated to generate approximately 14 percent fewer trips compared to an equal number of units at 100 percent market rate. Therefore, the project VMT would be expected be similarly or further reduced since the trip generation comparison does not take into account the shorter trip lengths associated with affordable housing.

**Table 4.11-2**  
**Affordable Housing Trip Generation Comparison**

Trip Generation Rates			
Land Use	Source	Units	Daily Rate
Multi-Family Housing	ITE 220	DU	7.32
Affordable Housing (Family)	LADOT	DU	4.16

Site	Quantity	Units	Daily
100% Market Rate Multi-Family Housing	724	DU	5,300
67% Market Rate, 33% Affordable Multi-Family Housing	485	DU	3,550
Affordable Housing (Family)	239	DU	994
Subtotal	724	DU	4,544
<b>% Difference</b>			<b>-14%</b>

Source: Ganddini, Signal Hill Housing Element Transportation Impact Analysis, Table 10. **Appendix 4.11-1.**

Note: ITE = Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017); ### = Land Use Code.

LADOT = Los Angeles Department of Transportation Transportation Assessment Guidelines (July 2020).

DU=Dwelling Units

12 Maximum amount of units possible for all Housing Sites used to generate a conservative estimate.

### Transit Priority Area (TPA)

CEQA Section 15064.3, subdivision (b)(1) states that certain projects within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor may be presumed to have a less than significant VMT impact. This presumption may not be appropriate if the project:

1. Has a Floor Area Ratio (FAR) of less than 0.75;
2. Includes more parking for use by residents, customers, or employees of the project than required by the City;
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Southern California Association of Governments [SCAG]); or
4. Replaces affordable residential units with a smaller number of moderate or high-income residential units.

Each of the Housing Sites is located within a high-quality transit area; therefore, the Housing Sites' development may be presumed to result in a less than significant VMT impact.

The Town Center North and Heritage Square Housing sites are expected to be developed a mixed-use sites, containing locally serving retail uses. As noted in the OPR Technical Advisory, new retail development typically redistributes shopping trips rather than creating new trips. By adding retail opportunities into the urban fabric and thereby improving proximity, local-serving retail tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume that local-serving retail (50,000 square feet or less) creates a less-than-significant transportation impact. The expected retail uses at each site would be less than 50,000 square feet and are envisioned as local community serving. As such, the potential retail portion of these housing sites is presumed to result in a less than significant VMT impact.

Although the Housing Sites' development may be presumed to result in a less than significant VMT impact based on Office of Technical Advisory guidance for affordable housing and projects located within a transit priority area, a detailed VMT analysis was performed using the SCAG regional travel demand model. As previously noted, in the absence of VMT guidelines or thresholds established by the City of Signal Hill, the VMT impact analysis was performed based on available guidance from the OPR Technical Advisory. The OPR-recommended threshold of 15 percent below existing VMT per capita (i.e., population) is also consistent with the neighboring City of Long Beach guidelines. For purposes of this analysis, the existing regional VMT per capita has been evaluated based on existing County of Los Angeles average. This threshold was selected based on available guidance from OPR and the neighboring City of Long Beach in the absence of guidelines or thresholds established by City of Signal Hill; the selected threshold may be



superseded based on supporting evidence if/when the City of Signal Hill establishes its own VMT thresholds.

A detailed VMT analysis was performed using the SCAG regional travel demand model. Model runs were performed by AFSHA Consulting, Inc. in accordance with OPR guidance regarding full trip length accounting. As shown in **Table 4.11-3**, the Housing Sites' development is estimated to generate 11.08 daily VMT per population for existing (year 2021) conditions. Based on the existing County of Los Angeles average VMT per population of 13.9, the regional threshold is equal to 11.8 daily VMT per population.

**Table 4.11-3**  
**Daily VMT Estimates**

Year	City of Signal Hill				Project		
	No Project		With Project		VMT	Pop.	VMT/Pop.
	VMT	Pop.	VMT	Pop.			
2012	415,040	11,424	436,995	13,369	21,955	1,945	11.29
2021	414,719	11,690	436,271	13,635	21,552	1,945	<b>11.08</b>
2040	414,040	12,253	434,742	14,198	20,702	1,945	10.64

Source: Southern California Association of Governments, 2016/2040 RTP Travel Demand Model.

Note: Pop=Population

County of Los Angeles average VMT/population as noted in City of Long Beach *Traffic Impact Analysis Guidelines* (June 2020).

The affordable housing component of the Housing Sites' development may be presumed to result in a less than significant impact based on available evidence cited in the OPR Technical Advisory. Each of the four Housing Sites are located within a high-quality transit area; therefore, the Housing Sites' development may be presumed to result in a less than significant VMT impact with implementation of the project design feature. Therefore, the Housing Sites' development is forecast to result in no significant VMT impact based on the OPR-recommended threshold, as also adopted by the City of Long Beach, of 15% below the existing regional VMT and the project design requirements which would ensure consistency with the screening criteria. As such, impacts relating to VMT would be less than significant.

#### **Threshold TRA-3: Result in inadequate emergency access?**

The internal circulation network and any changes to the external circulation network associated with the implementation of subsequent projects facilitated under the 2021-2029 Housing Element Update would be subject to review by the City of Signal Hill and responsible emergency service agencies; thus, ensuring

that the future project would be designed to meet all applicable emergency access and design standards and adequate emergency access would be provided.

According to the City's Safety Element, no major improvements are considered necessary to maintain emergency access within the City and future development in the City would be required to meet minimum roadway widths and subdivision design requirements as established by the City's Municipal Code Titles 15 (Building and Construction) and 18 (Subdivisions) and Los Angeles County Fire Department (LACoFD).<sup>13</sup>

Emergency access of future proposed projects facilitated by the 2021-2029 Housing Element Update would be required to meet the LACoFD standards, which ensure that new developments provide adequate access and circulation for fire engines and other emergency vehicles and provide adequate space for appropriate positioning of emergency response crews during emergencies. Therefore, since the future development would be subject to approval by the Los Angeles County Fire Department and required to demonstrate compliance with standards pertaining to emergency access, prior to the issuance of a construction permit, there would be a less than significant impact on emergency access. Additionally, during the building plan check and development review process, the City would coordinate with the LACoFD and Signal Hill Police Department to ensure that the necessary fire prevention and emergency response features are incorporated into each of the future housing development projects, and that adequate circulation and access (e.g., adequate turning radii for fire trucks) is provided in the traffic and circulation components of the housing developments. With these measures implemented for future development, impacts to emergency access would be less than significant.

## **5. MITIGATION MEASURES**

The proposed Project would have a less than significant impact on transportation. Therefore, no mitigation measures would be required.

## **6. LEVEL OF SIGNIFICANCE AFTER MITIGATION**

The proposed Project would have a less than significant impact on transportation. Therefore, no mitigation measures would be required.

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13 City of Signal Hill General Plan, Safety Element, <https://www.cityofsignalhill.org/85/General-Plan>. Accessed August 2021.

### 1. INTRODUCTION

This section provides an overview of Tribal Cultural Resources in the City of Signal Hill and evaluates the potential impacts of the Project. The analysis incorporates information from the documentation and correspondence contained in **Appendix I** of this DEIR including letters of Formal Tribal Notification of the Project dated April 30, 2021; Gabrieleno Band of Mission Indians- Kizh Nation Consultation Notification Response dated April 15, 2021; the Native American Heritage Commission Response to Consultation dated April 22, 2021; and the Cultural Resource Desktop Review dated June 18, 2021.

### 2. ENVIRONMENTAL SETTING

#### Prehistoric Setting

The landmass and climate of Southern California presented a unique region for Native American Tribes to settle and coexist. Tribes existing towards the north included the Chumash, Alliklik, Kitanemuk, Serrano, Gabrielino Luiseno Cahuilla, and the Kumeyaay who had fruitful relationships with their Chumash neighbors who lived on the Channel Islands.<sup>1</sup> These tribes had access rich marine resources and enjoyed the shoreline consisting of ocean, bays, and wetland environments. The interior tribes of the Serrano, Luiseno, Cahuilla, and Kumeyaay lived within a warmer more desert -like climate utilizing the abundance of rabbit, deer, acorn, seeds, and native grasses to thrive. According to the History of Signal Hill, the Puva Indians were the first settlers of the area that is now known as Signal Hill.<sup>2</sup> The City was named after the signaling point that the tribe used to contact Native American tribes on the island of Santa Catalina called “Loma Sental” or “Signal Hill.” It was recorded that the Puva had knowledge of oil seeps existing within the area which were later utilized for oil drilling and manufacturing facilities.<sup>3</sup> The early Native American tribes including the Puva tribe had been seen using the tar or “pitch” from these seeps to waterproof their canoes for more efficient travel, most likely to trade with the neighboring Chumash or fish near the shoreline.

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1 State of California, Native American Heritage Commission, California Indian History, <http://nahc.ca.gov/resources/california-indian-history/>. Accessed June 2021.

2 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore.>, accessed May 2021.

3 Signal Hill Historical Society, The Story of Oil in California, <https://www.shhs90755.org/early-oil-history/story-of-oil-in-ca.html>. Accessed June 2021.

## Historic Setting

In 1784, Manuel Nieto received a land grant from King Carlos III of Spain and became the first recorded land owner in the City.<sup>4</sup> Nieto divided the land into six ranchos which included Rancho Los Alamitos and Rancho Los Cerritos in Signal Hill. The land was later sold to the Bixby family who also held ranchos in what is now Long Beach. By the early 1900's, Signal Hill was occupied by wealthy inhabitants who added mansions to the hilltops of the city since the panoramic views of the area were captivating. In 1921, oil was discovered in Signal Hill on a hilltop and the Union Oil Company drilled the first well in the area. The well failed to produce any oil and was abandoned shortly thereafter until the Royal Dutch Shell Oil Company continued to explore the city for more prospective areas in 1921. The company discovered the first official overwhelming source of oil, naming it Alamitos Well Number 1, which produced a continuous release of oil and furthered Signal Hill's reputation as a major source of oil. The city became known as one of the richest oil fields in the world, producing over one billion barrels over the next few decades by 1984. By 1994, over 1.6 million barrels were produced in just that year.

The city of Signal Hill is completely surrounded by the city of Long Beach and in 1924, in order to avoid a per-barrel tax on oil by the city of Long Beach, Signal Hill voted to become incorporated.<sup>5</sup> Signal Hill's production of oil continued to be the main source of growth for the city, until the 1970s when gas prices were in decline. The City needed to refocus their efforts on economic development and diversity away from oil production. Signal Hill continues to produce moderate amounts of oil at around 5 million barrels per year.<sup>6</sup>

## Existing Conditions

### *Walnut Bluff*

Walnut Bluff is located north of Willow Street at 2653 Walnut Avenue. The site is located in the Central neighborhood of the City and has approximately 2 acres identified for potential residential development. The existing site is vacant aside from four active oil and gas wells (two of which have idle status), four abandoned wells, and limited vegetation. The Walnut Bluff Housing Site is located on mostly vacant land occupied by few buildings and active drilling rigs.

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- 4 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore>
  - 5 City of Signal Hill, History of Signal Hill, <https://www.cityofsignalhill.org/218/History-of-Signal-Hill#:~:text=Signal%20Hill%20has%20a%20rich%20and%20colorful%20history,tribes%20on%20Santa%20Catalina%20Island%2C%2026%20miles%20offshore>, accessed May 2021.
  - 6 City of Signal Hill, The Oil Field, <https://www.cityofsignalhill.org/422/The-Oil-Field#:~:text=25%20square%20mile%20city%20of%20Signal%20Hill%20lies,retains%20around%205%20million%20barrels%20of%20recoverable%20oil>, accessed May 2021.

### ***Orange Bluff***

Orange Bluff is located in the Central neighborhood adjacent to the City boundary south of East 28th Street. The area set aside for residential development is approximately 7.1 acres. The existing site is mostly vacant; however the center of the site is developed with a light industrial building. There is also an existing industrial kitchen supply store and a spice warehouse on the site. These existing structures would not be within the proposed residential development area and would remain on-site. Scattered about the site are remnants of previous developments including foundations, and paved areas, with limited vegetation.

### ***Town Center Northwest***

Town Center Northwest is located northeast of the intersection of Willow Street and Walnut Avenue in the Central neighborhood. The area set aside for residential development is approximately 7.4 acres. The existing site contains one of seven drill sites in the City housing eleven injection wells (three of which have idle status). There are also approximately fourteen active oil and gas wells (9 of which have idle status) outside of the drill site area, approximately ten abandoned wells, and limited vegetation.

### ***Heritage Square***

Heritage Square is located near the City center in the Civic Center neighborhood, northwest of the intersection of Cherry Avenue and Burnett Street. The area set aside for residential development is approximately 3.4 acres. The existing condition onsite contains a commercial retail use (local grocer). There are eight active oil and gas wells (seven of which have idle status), ten abandoned wells, and limited vegetation. The site also contains pavement and fencing around the perimeter of each individual parcel. The Heritage Square Housing Site is located in an area that has been mostly disturbed by drilling activities.

## **3. REGULATORY SETTING**

### ***State***

#### **Assembly Bill 52**

AB 52 was approved by California State Governor Jerry Brown, Jr. on September 25, 2014. The legislation amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. The primary intent of AB 52 was to include California Native American tribes early in the environmental review process and to establish a new category of resources related to Native Americans, known as tribal cultural resources, that require consideration under the California Environmental Quality Act (CEQA). PRC Sections 21074(a)(1) and (2) define tribal cultural resources as either (1) “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either” included or determined to be eligible for inclusion in the

California Register of Historical Resources (California Register) or included in a local register of historical resources, or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be a significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 (i.e., criteria for listing a resource in the California Register). On July 30, 2016, the California Natural Resources Agency adopted the final text for the tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

AB 52 applies specifically to projects for which a NOP or a Notice of Intent to Adopt a Negative Declaration of Mitigated Negative Declaration (MND) was filed after July 1, 2015. PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete or a public agency decides to undertake a project, the lead agency shall provide formal notification for consultation to the designated contact, or a tribal representative, of California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project and who have requested in writing to be informed by the lead agency. Tribes interested in consultation must respond in writing within 30 days from the receipt of the lead agency's formal written notification, and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation.

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; and project alternatives or appropriate measures for preservation or mitigation that the tribe(s) may recommend to the lead agency. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is 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 without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, the information 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.

In addition, PRC Section 21082.3(d) states that if a California Native American tribe has requested consultation pursuant to PRC Section 21080.3.1 and has failed to provide comments to the lead agency,

or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND for a project with a significant impact on an identified TCR.

### **State Bill 18**

Senate Bill (SB) 18 (California Government Code Section 65352.3) incorporates the protection of California's traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general plan or specific plan proposed on or after March 1, 2005. SB 18 requires public notice to be sent to tribes listed on the NAHC's SB 18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the PRC that may be affected by the proposed adoption or amendment to a general plan or specific plan.

### **Health and Safety Code (Section 7050.5)**

The California Health and Safety Code Section 7050.5 identifies protocols if human remains are encountered unexpectedly. In such circumstance, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98.

### **Public Resources Code (Section 5097.98)**

Section 5097.98 of the PRC stipulates that whenever the NAHC receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, those persons believed to be most likely descended from the deceased Native American must be notified. The descendants may, with the permission of the owner of the land, or their authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make their recommendation within 24 hours of their notification by the NAHC. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

## 5. ENVIRONMENTAL IMPACTS

### *Thresholds of Significance*

To assist in determining whether the proposed Project would have a significant effect on the environment, the City evaluates the Project against the following threshold:

**Threshold IV. TCR-1:** Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

## 6. METHODOLOGY

Public Resources Code (PRC) Section 21080.3.1 (Assembly Bill [AB] 52) provides Native American tribes the opportunity to consult on a proposed public or private project should the tribe(s) be concerned there are potential impacts to tribal cultural resources. AB 52 requires the local jurisdictions to provide a 30-day notice to California Native American tribes who has expressed interest in being notified by local jurisdictions. Senate Bill (SB) 18 California Government Code Section 65352.3 also requires consultation with Native American tribes as part of the adoption or amendment of any general plan or specific plan. SB 18 requires the local jurisdictions to provide a 90-day notice to California Native American tribes on the NAHC list. Eight tribal groups were on the NAHC consultation list. These tribes include: Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno – Tongva Nation, Gabrieleno – Tongva San Gabriel Band of Mission Indians, Gabrieleno Tongva Indians of California Tribal Council, Gabrieleno – Tongva Tribe, Juaneno Band of Mission Indians Acjachemen Nation – Belardes, Santa Rosa Band of Cahuilla Indians, and Soboba Band of Luiseno Indians. The City of Signal Hill initiated consultation with the Gabrieleno – Tongva Nation, Gabrieleno – Tongva San Gabriel Band of Mission Indians, Gabrieleno Tongva Indians of California Tribal Council, Gabrieleno – Tongva Tribe, Juaneno Band of Mission Indians Acjachemen Nation – Belardes, Santa Rosa Band of Cahuilla Indians, and Soboba Band of Luiseno Indians. The City notified these



tribes of the Project by letter in May and April 2021. The City received a response from the Gabrieleno Band of Mission Indians-Kizh Nation (Tribe) on April 15, 2021 stating consultation would be needed if there will be any type of ground disturbance.

Additionally, a Cultural Resource Inventory search and literature review through the California Historic Resource Information System (CHRIS) was conducted to provide information on tribal cultural resources in the Project area. Also, the Native American Heritage Commission (NAHC) was contacted to request a search of the Sacred Lands File (SLF).

## 7. PROJECT IMPACTS

Assembly Bill (AB) 52 and Senate Bill (SB) 18, introduced into CEQA tribal cultural resource as a class of cultural resources and additional requirements relating to Native American consultation. A tribal cultural resource may be considered significant if it is included in a local or State register of historical resources, is determined by the lead agency to be significant pursuant to criteria set forth in PRC Section 5024.1, is a geographically defined cultural landscape that meets one or more of the criteria in PRC Section 5024.1, or is a historical resource described in PRC Section 21084.1, a unique archaeological resource described in PRC Section 21083.2, or is a nonunique archaeological resource if it conforms with the above criteria.<sup>7</sup>

Based on the records search conducted for the Project and the City's correspondence with the Tribes, no known tribal cultural resources were identified on or adjacent to the Housing Sites. The records search identified five resources within a half-mile buffer of the Housing Sites including: two pre-historic sites (Shell Midden), and three historic buildings (Lomita Gasoline Company/Petrolane Office Building, a Single-Family Residence, and Lomita Gasoline Company/Petrolane Compressor House). These resources were not identified as listed or eligible for listing within the CRHR. Additionally, a review of historic topographic maps and aerial photographs was conducted and found that all four Housing Sites included petroleum wells and associated infrastructure dating back to the early 1930s.

All of the Housing Sites are highly disturbed due to past developments and/or oil extraction activities. Existing developments on Housing Sites include existing building structures, parking lots, and operating and abandoned oil wells.

Future development at the identified Housing Sites would include ground-disturbing activities through its site preparation and construction activities. Subterranean levels are not anticipated; thus ground disturbance would be relatively limited. Given that the Sites have been extensively altered by past

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<sup>7</sup> California Legislative Information, SB-52 Native Americans: California Environmental Quality Act, [https://leginfo.ca.gov/faces/billTextClient.xhtml?bill\\_id=200320040SB18](https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=200320040SB18), accessed May 2021.

development and oil extraction activities, there is a low potential for encountering subsurface cultural resources.

Regardless, given the cultural history of the area, ground disturbance has the potential to unearth unknown cultural artifacts. As a result of its outreach efforts, the City has agreed to incorporate the mitigation measures commonly recommended by the Gabrieleno Band of Mission Indians—Kizh Nation. With the implementation of these mitigation measures, potentially significant impacts to tribal cultural resources would be reduced to a level that is less than significant.

## 8. MITIGATION MEASURES

The following Mitigation Measures (MMs) have been identified and are based on available information and the consultation process described above.

### **MM TCR-1      Retain a Native American Monitor Prior to Commencement of Ground Disturbing Activities**

- The project applicant/lead agency shall retain a Native American monitor from (or approved by) the Gabrieleno Band of Mission Indians – Kizh Nation (the “Kizh” or the “Tribe”) - the direct lineal descendants of the project location. The monitor shall be retained prior to the commencement of any “ground-disturbing activity” for the subject project, at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). “Ground-disturbing activity” includes, but is not limited to, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.
- A copy of the executed monitoring agreement shall be provided to the lead agency prior to the earlier of the commencement of any ground-disturbing activity for the project, or the issuance of any permit necessary to commence a ground-disturbing activity.
- The project applicant/developer shall provide the Tribe with a minimum of 30 days advance written notice of the commencement of any project ground-disturbing activity so that the Tribe has sufficient time to secure and schedule a monitor for the project.
- The project applicant/developer shall hold at least one (1) pre-construction sensitivity/educational meeting prior to the commencement of any ground-disturbing activities, where at a senior member of the Tribe will inform and educate the project’s construction and managerial crew and staff members (including any project subcontractors and consultants) about the TCR mitigation measures and compliance obligations, as well as places of significance located on the project site (if

any), the appearance of potential TCRs, and other informational and operational guidance to aid in the project's compliance with the TCR mitigation measures.

- The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the project applicant/lead agency upon written request.
- Native American monitoring for the project shall conclude upon the latter of the following: (1) written confirmation from a designated project point of contact to the Tribe that all ground-disturbing activities and all phases that may involve ground-disturbing activities on the project site and at any off-site project location are complete; or (2) written notice by the Tribe to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase (known by the Tribe at that time) at the project site and at any off-site project location possesses the potential to impact TCRs.

#### **MM TCR-2      Discovery of TCRs, Human Remains, and/or Grave Goods**

- Upon the discovery of a TCR, all construction activities in the immediate vicinity of the discovery (i.e., not less than the surrounding 50 feet) shall cease. The Tribe shall be immediately informed of the discovery, and a Kizh monitor and/or Kizh archaeologist will promptly report to the location of the discovery to evaluate the TCR and advise the project manager regarding the matter, protocol, and any mitigating requirements. No project construction activities shall resume in the surrounding 50 feet of the discovered TCR unless and until the Tribe has completed its assessment/evaluation/recovery of the discovered TCR and surveyed the surrounding area.
- The Tribe will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate in its sole discretion, and for any purpose the Tribe deems appropriate, including but not limited to, educational, cultural and/or historic purposes.
- If Native American human remains and/or grave goods are discovered or recognized on the project site or at any off-site project location, then all construction activities shall immediately cease. Native American "human remains" are defined to include "an inhumation or cremation, and in any state of decomposition or skeletal completeness." (Pub. Res. Code § 5097.98 (d)(1).) Funerary objects, referred to as

“associated grave goods,” shall be treated in the same manner and with the same dignity and respect as human remains. (Pub. Res. Code § 5097.98 (a), d)(1) and (2).)

- Any discoveries of human skeletal material or human remains shall be immediately reported to the County Coroner (Health & Safety Code § 7050.5(c); 14 Cal. Code Regs. § 15064.5(e)(1)(B)), and all ground-disturbing project ground-disturbing activities on site and in any other area where the presence of human remains and/or grave goods are suspected to be present, shall immediately halt and remain halted until the coroner has determined the nature of the remains. (14 Cal. Code Regs. § 15064.5(e).) If the coroner recognizes the human remains to be those of a Native American or has reason to believe they are Native American, he or she shall contact, within 24 hours, the Native American Heritage Commission, and Public Resources Code Section 5097.98 shall be followed.
- Thereafter, construction activities may resume in other parts of the project site at a minimum of 200 feet away from discovered human remains and/or grave goods, if the Tribe determines in its sole discretion that resuming construction activities at that distance is acceptable and provides the project manager express consent of that determination (along with any other mitigation measures the Tribal monitor and/or archaeologist deems necessary). (14 Cal. Code Regs. § 15064.5(f).)
- Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or grave goods.
- Any historic archaeological material that is not Native American in origin (non-TCRs) shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.

#### **MM TCR-3 Procedures for Burials, Funerary Remains, and Grave Goods**

- Any discovery of human remains and/or grave goods discovered and/or recovered shall be kept confidential to prevent further disturbance.
- As the Most Likely Descendant (“MLD”), the Koo-nas-gna Burial Policy shall be implemented for all discovered Native American human remains and/or grave goods. Tribal Traditions include, but are not limited to, the preparation of the soil for burial, the burial of funerary objects and/or the deceased, and the ceremonial burning of human remains.
- If the discovery of human remains includes four (4) or more burials, the discovery location shall be treated as a cemetery and a separate treatment plan shall be created.

- The prepared soil and cremation soils are to be treated in the same manner as bone fragments that remain intact. Associated “grave goods” (aka, burial goods or funerary objects) are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later, as well as other items made exclusively for burial purposes or to contain human remains. Cremations will either be removed in bulk or by means necessary to ensure complete recovery of all sacred materials.
- In the case where discovered human remains cannot be fully recovered (and documented) on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to divert the project while keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed.
- In the event preservation in place is not possible despite good faith efforts by the project applicant/developer and/or landowner, before ground-disturbing activities may resume on the project site, the landowner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. The site of reburial/repatriation shall be agreed upon by the Tribe and the landowner, and shall be protected in perpetuity.
- Each occurrence of human remains and associated grave goods will be stored using opaque cloth bags. All human remains, grave goods, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items will be retained and shall be reburied within six months of recovery.
- The Tribe will work closely with the project’s qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be prepared and shall include (at a minimum) detailed descriptive notes and sketches. All data recovery data recovery-related forms of documentation shall be approved in advance by the Tribe. If any data recovery is performed, once complete, a final report shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive and/or destructive diagnostics on human remain.

## 9. LEVEL OF SIGNIFICANCE AFTER MITIGATION

With the implementation of **MM TCR-1**, **MM TCR-2**, and **MM TCR-3** any as yet unknown cultural artifacts that may be unearthed during ground disturbing activities would be appropriately identified and protected. As such, impacts would be reduced to a less than significant level.

### 1. INTRODUCTION

The identification and analysis of alternatives to a proposed project is a fundamental aspect of the environmental review process under CEQA. Public Resources Code Section 21002 states, in part: “it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects.” In addition, Public Resources Code Section 21002.1(a) states: “The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.”

CEQA Guidelines Section 15126.6(a) provides the following guidance regarding an EIR’s discussion of alternatives:

*An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible.*

CEQA Guidelines Section 15126.6(b) emphasizes the selection of project alternatives should be based primarily on the ability to avoid or substantially lessen significant impacts attributable to a proposed project, “even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” CEQA Guidelines Section 15126.6(f) further directs that the range of alternatives be guided by a “rule of reason,” such that only those alternatives necessary to permit a reasoned choice are addressed. In selecting project alternatives for analysis, potential alternatives must be feasible. CEQA Guidelines Section 15126.6(f)(1) states:

*Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries..., and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.*

Beyond these factors, CEQA Guidelines Section 15126.6(e) requires the analysis of a “no project” alternative and CEQA Guidelines Section 15126.6(f)(2) requires the evaluation of alternative location(s) for a proposed project, if feasible. Based on the alternatives analysis, CEQA Guidelines Section 15126.6(e)(2) requires an EIR to designate an environmentally superior alternative. If the environmentally superior alternative is the No Project Alternative, then the EIR must identify an environmentally superior alternative among the other alternatives. CEQA Guidelines Section 15126.6(d) states:

*The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project... If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.*

As indicated above, the intent of the alternatives analysis is to reduce the significant impacts of a proposed project. Based on the significant environmental impacts of the Project and the objectives established for the Project (listed in **Section 2.0: Project Description** of this Draft EIR and identified below), and based on the feasibility of the alternatives considered, the following alternatives to the Project are evaluated in this section:

- Alternative 1: No Project/No Development
- Alternative 2: Alternate Housing Site Locations
- Alternative 3: Alternative Allocation of Residential Units

In accordance with CEQA Guidelines Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less, similar, or greater than the corresponding impacts of the Project. As such, the focus of the evaluation is on those environmental resources for which the Project may have potential impacts.

## **2. ALTERNATIVES CONSIDERED AND REJECTED AS INFEASIBLE**

The range of alternatives required within an EIR is governed by the “rule of reason,” under CEQA Guidelines, Section 15126.6(f), which requires an EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR need not consider every conceivable alternative to a project. An EIR need not consider an alternative with an unlikely or speculative potential for implementation or an alternative that would result in effects that cannot be reasonably ascertained.

An EIR is not required to evaluate alternatives that are not feasible. The term feasible is defined in the CEQA Guidelines, Section 15364 as “capable of being accomplished in a successful manner within a

reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” CEQA Guidelines, Section 15126.6(f)(1) provides additional factors that may be taken into account when addressing the feasibility of alternatives. These factors include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to potential alternative sites.

Reasonable alternatives are those that would attain most of the basic objectives of the Project. As described in **Section 2.0**, the following objectives have been identified for the proposed Project:

1. Increasing the housing supply and the mix of housing types, tenure, and affordability in all cities and counties within the region in an equitable manner, which shall result in each jurisdiction receiving an allocation of units for low- and very low-income households.
2. Promoting infill development and socioeconomic equity, the protection of environmental and agricultural resources, the encouragement of efficient development patterns, and the achievement of the region’s greenhouse gas reductions targets provided by the State Air Resources Board pursuant to Section 65080.
3. Promoting an improved intraregional relationship between jobs and housing, including an improved balance between the number of low-wage jobs and the number of housing units affordable to low-wage workers in each jurisdiction.
4. Allocating a lower proportion of housing need to an income category when a jurisdiction already has a disproportionately high share of households in that income category, as compared to the countywide distribution of households in that category from the most recent American Community Survey.
5. Affirmatively furthering fair housing.

Under CEQA Guidelines Section 15126.6(c), an EIR should identify any alternatives that were considered by the lead agency but were rejected as infeasible and briefly explain the reasons underlying the lead agency’s determination. Pursuant to the CEQA Guidelines(c), the following factors may be used to eliminate alternatives from detailed consideration in an EIR: (i) the alternative’s failure to meet most of the basic project objectives; (ii) the alternative’s infeasibility; or (iii) the alternative’s inability to avoid significant environmental impacts.

Any alternative that would not allow for adequate sites that could accommodate housing that meets the Regional Housing Needs Allocation would be rejected as failing to meet the basic project objectives.



### 3. ALTERNATIVES DESCRIPTIONS

#### Alternative 1 – No Project Alternative

Section 15126.6(e) of the CEQA Guidelines state: “the No Project/No Build Alternative means ‘no build’ wherein the existing environmental setting is maintained.” Accordingly, for purposes of this analysis, Alternative 1, the No Project/No Development alternative (Alternative 1), assumes the Project would not be approved and the City would continue to implement the adopted 2014 Housing Element as adopted in the General Plan. No changes to the element would be made to address the requirements of State law. Since the adoption of the 2014 Housing Element, the City has been issued a Regional Housing Needs Allocation (RHNA) by the Southern California Association of Governments (SCAG) and is required by State law to address its housing needs in an updated Housing Element. The Housing Element goals, policies, and programs as well as the Land Use Map and Zoning Code would not be updated to address the City’s housing needs under this alternative. The four Candidate Housing Sites would retain their adopted General Plan and zoning designations.

Alternative 1 would result in the continuation of existing conditions and planned development of the City. No new significant environmental impacts or an increased severity of environmental impacts identified in the General Plan EIR would occur under this alternative because it would retain the existing General Plan land use designations and policy provisions.

#### ***Comparative Impacts***

##### **Cultural**

The future development as facilitated by the No Project Alternative would be less than that of the Project. Nonetheless, the existing historic resources in the Project area could still be affected by future development not associated by the Project under a No Project Alternative. However, like the Project, following compliance with the established regulatory framework and site-specific mitigation measures, impacts could be reduced to less than significant.

##### **Geology**

The analysis of potential impacts from vacant site development throughout the City addressed geologic events, erosion and topsoil loss, unique paleontological/geological features, expansive soils, and unstable geological units or soils. As discussed in **Section 4.4: Geology and Soils**, all project-related impacts concerning these conditions would be reduced to less than significant through conformance with all applicable local, State, and federal regulatory requirements. The No Project Alternative would not expose people and/or structures to potential adverse effects associated with geologic and seismic hazards, such

as fault rupture, seismic ground shaking, liquefaction, lateral spreading, subsidence, landslides or expansive soils. As no development would occur, no construction or operational impacts to geological resources and soils would occur under the No Project Alternative and impacts would be reduced when compared to the less than significant impacts of future development facilitated by the Project.

## **Hazards**

As discussed in **Section 4.6: Hazards and Hazardous Materials**, all project-related impacts concerning hazards and hazardous materials would be reduced to less than significant through conformance with all applicable local, State, and federal regulatory requirements in place for hazardous materials. As no future development would occur under this alternative, hazards associated with the existing oil infrastructure on each of the Housing Sites would not be addressed. As such, the No Project Alternative would avoid any remediation of the existing Sites and thus would not reduce impacts as compared to the Project Alternative.

## **Noise**

Under Alternative 1, no new construction would occur on the Project site and all on-site uses would continue to operate as they currently do. Under Alternative 1, no noise or ground borne vibration impacts from construction would occur and impacts would be reduced when compared to the Project's less than significant construction noise and vibration impacts with mitigation. The Project, as proposed, would incrementally increase long-term, traffic-related, and operational noise levels. However, these operational noise impacts would not be significant. Alternative 1 would not result in any increase in long-term, traffic-related, and operation noise levels. Thus, no operational impacts associated with noise would occur under this Alternative, and operational impacts would be reduced when compared to the Project's less than significant impacts

## **Tribal Cultural Resources**

The level of development assumed under this Alternative would be less than that of the Project. However, the potential for impacts to Tribal Cultural Resources is associated with the ground disturbance during construction, which could happen under this Alternative with other possible development projects on-site in the future. Thus, a No Project Alternative would not avoid or reduce the significant tribal cultural resources impacts of the Project. However, like the Project, following established site-specific mitigation measures, impacts could be reduced to less than significant.

## Alternative 2 – Alternate Housing Site Locations

During the planning stages of the Project, the City worked with local property owners, business owners, the local real estate community, and developers to determine a list of potential housing sites that would fit the criteria for the Project. Housing consultants also worked with the City to complete a survey of possible sites. Through this process, the following alternative sites were identified as potential candidate housing sites:

1. 700 E. Spring Street / Atlantic Avenue – SW corner at 29<sup>th</sup> Street and Atlantic Ave.
2. Creston Bluff/Commons
3. Walnut Heights - on Walnut Ave. and Crescent Heights St.
4. North Bluff
5. Pacific Coast Highway and Reservoir
6. 1450 E. 27th St. and 2655 Walnut Avenue
7. 2800 Cherry Avenue
8. Brandywine – End of Ohio St. to Temple Ave.

These sites were subsequently not selected for the Project due to a range of criteria including geologic and hazard site conditions and estimated remediation cost, size, ownership, and other community concern. Nonetheless, it could be feasible to select from among these sites some alternative to one or more of the sites presented in this DEIR.

## ***Comparative Impacts***

### **Cultural**

The future development that could be accommodated by the Alternate Housing Site Locations would be similar in total to that of the Project in order to achieve the goals of the Project. The potential impacts to Cultural Resources are associated with the probability of unearthing archaeological or other as yet unknown cultural artifacts during development. The same potential would exist on other sites within the City. Furthermore, like the Project, following compliance with the established regulatory framework and site-specific mitigation measures, these impacts would be less than significant. As such, the Alternative would have equivalent impacts to the Project.

## Geology

The analysis of potential impacts from vacant site development throughout the City addressed geologic events, erosion and topsoil loss, unique paleontological/geological features, expansive soils, and unstable geological units or soils. As discussed in **Section 4.4**, project-related impacts concerning these conditions would be reduced to less than significant through mitigation and conformance with all applicable local, State, and federal regulatory requirements. The site conditions occurring on the Project sites are comparable to conditions found throughout the City. Similar impacts would likely occur on Alternate Housing Site Locations. As such, the Alternative would have equivalent impacts to the Project.

## Hazards

As discussed in **Section 4.6**, all project-related impacts concerning hazards and hazardous materials would be reduced to less than significant through mitigation measures and conformance with all applicable local, State, and federal regulatory requirements in place for hazardous materials. As future development would occur under the Alternate Housing Site Locations Alternative, hazards associated with potential existing or past oil infrastructure on each of the potential housing sites would need to be addressed. As such, the Alternate Housing Site Locations Alternative would require remediation of the existing Sites and thus would have similar impacts as compared to the Project Alternative. As such, the Alternative would have equivalent impacts to the Project.

## Noise

Under the Alternate Housing Site Locations Alternative, new construction would occur on the Project site and all on-site uses would be subject to new noise and ground borne vibration. Under the Alternate Housing Site Locations Alternative, impacts from construction would occur and impacts would be similar to the Project. The Project, as proposed, would incrementally increase long-term, traffic-related, and operational noise levels. However, these operational noise impacts would not be significant. The Alternate Housing Site Locations Alternative would also result in an increase in long-term, traffic-related, and operation noise levels. Thus, operational impacts associated with noise would occur under the Alternate Housing Site Locations Alternative, and operational impacts would be similar when compared to the Project's less than significant impacts. As such, the Alternative would have equivalent impacts to the Project.

## Tribal

The level of development assumed under the Alternate Housing Site Locations Alternative would be similar in comparison to the Project. With Alternative 2, there would be a similar level of development of

the potential housing sites in order to increase the number of residential units in the City. The potential for impacts to Tribal Cultural Resources is associated with the ground disturbance during construction, which would happen under the Alternate Housing Site Locations Alternative. Thus, Alternative 2 would potentially increase impacts to tribal cultural resources, but would also require mitigation to reduce impacts to less than significant similar to the Project's less than significant impacts to tribal cultural resources with mitigation measures incorporated.

### **Alternative 3 – Rearranged Density of Residential Units**

Under the Rearranged Density of Residential Units Alternative (Alternative 3), the same four housing sites would be identified, however the distribution of densities between the site would change to reduce the density for the Walnut Bluff and Orange Bluff Site and increase the density for the Town Center Northwest and Heritage sites. As such, Alternative 3 would include the same quantity of dwelling units as to meet the RHNA, but in a different configuration.

### ***Comparative Impacts***

#### **Cultural**

The future development as facilitated by the Rearranged Density Alternative would be similar to that of the Project as it would construct the same amount of units. As such, the existing historic resources in the Project area could still be affected by future development associated with the 2021-2029 Housing Element Update under the Reduced Density Alternative. However, like the Project, following compliance with the established regulatory framework and site-specific mitigation measures, these impacts would be less than significant.

#### **Geology**

The analysis of potential impacts from vacant site development throughout the City addressed geologic events, erosion and topsoil loss, unique paleontological/geological features, expansive soils, and unstable geological units or soils. As discussed in **Section 4.4**, all Project-related impacts concerning these conditions would be reduced to less than significant through conformance with all applicable local, State, and federal regulatory requirements. The Rearranged Density Alternative would not expose people and/or structures to potential adverse effects associated with geologic and seismic hazards, such as fault rupture, seismic ground shaking, liquefaction, lateral spreading, subsidence, landslides or expansive soils. As development would occur under this alternative, construction and operational impacts to geological resources and soils would occur and would be similar to the Project. Overall, impacts would be similar to the Project when compared.

## Hazards

As discussed in **Section 4.6**, all Project-related impacts concerning hazards and hazardous materials would be reduced to less than significant through conformance with all applicable local, State, and federal regulatory requirements in place for hazardous materials. As similar future development would occur under the Reduced Density Alternative, hazards associated with the existing oil infrastructure on each of the Housing Sites would be addressed. As such, the Rearranged Density Alternative would address any remediation of the existing Sites and thus would have similar impacts as compared to the Project.

## Land Use

As described in **Section 4.7: Land Use and Planning**, the Project is a Housing Element Update in the 6<sup>th</sup> cycle, including housing development on the candidate housing sites facilitated by the 2021-2029 Housing Element Update. This means that the Housing Element as part of the City's General Plan is being amended. By comparison, the Rearranged Density Alternative would allow for development consistent with 2021-2029 Housing Element Update. Under the Project and the Reduced Density Alternative, the degree of potential land use conflicts associated with future development would be similar. The Rearranged Density Alternative would develop the same number of residential units as the Project and the intensity of the future development would be similar. There would be no intensity of development which would reduce impacts to land use other than a no project alternative. Any development on the Housing Sites would introduce new traffic, construction, and other subsequent actions associated with new development. Thus, the Rearranged Density Alternative would not reduce or increase the significant impact to land use and impacts would be less than significant.

## Noise

Under the Reduced Density Alternative, new construction would occur on the Project site and all on-site uses would be subject to new noise and ground borne vibration. Under the Reduced Density Alternative, impacts from construction would occur and impacts would be similar when compared to the Project's less than significant construction noise and vibration impacts with mitigation. The Project, as proposed, would incrementally increase long-term, traffic-related, and operational noise levels. However, these operational noise impacts would not be significant. The Rearranged Density Alternative would also result in an increase in long-term, traffic-related, and operation noise levels. Thus, operational impacts associated with noise would occur under the Reduced Density Alternative, and operational impacts would be similar when compared to the Project's less than significant impacts.

## Population and Housing

Under the Reduced Density Alternative, construction of the Project would occur; thus, potential population, housing, and employment-related impacts would be similar to those of the Project. Therefore, the Rearranged Density Alternative would have the potential to result in direct population, housing, and employment growth. Population, housing, and employment impacts would occur, and impacts would be similar when compared to the Project's less than significant impacts.

## Public Services

The Rearranged Density Alternative could generate similar demand for public services compared to the Project, given the Rearranged Density Alternative would involve similar overall residents within the development. As with the Project, construction of new public service facilities to accommodate increased demands under the Rearranged Density Alternative would not be required to meet performance standards, thus, no environmental impacts would occur in this regard. Thus, the Rearranged Density Alternative would be considered neither environmentally superior nor inferior to the Project concerning public services.

## Transportation

The Rearranged Density Alternative would generate similar vehicle miles traveled (VMT) compared to the Project. Under the Rearranged Density Alternative, future development would occur as facilitated by the Project, but with an adjusted density of dwelling units per acre. As discussed in **Section 4.11: Transportation and Traffic**, impacts to conflicts with plans and policies, VMT guidelines, and geometric hazards would be less than significant with implementation of the Project and future development facilitated by it. Additionally, the Project would be expected to reduce VMT by including affordable housing as well as mixed-use developments. The Rearranged Density Alternative would require affordable housing within the Housing Sites. As such, impacts would still be reduced to less than significant similar to the Project.

## Tribal

The level of development assumed under the Rearranged Density Alternative would be similar to that of the Project. However, the potential for impacts to Tribal Cultural Resources is associated with the ground disturbance during construction, which would happen under the Rearranged Density Alternative. Thus, the Rearranged Density Alternative would not avoid or reduce the significant tribal cultural resources impacts of the Project.

## 5. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify an environmentally superior alternative among the alternatives evaluated. If the “no project” alternative is the environmentally superior alternative, the EIR must identify another environmentally superior alternative among the remaining alternatives.

The “No Project” Alternative (Alternative 1) could have reduced levels of impact in some areas but would not avoid any of the significant impacts of the Project and would not achieve any of the City’s objectives for the Project.

The Alternative Housing Sites Alternative (Alternative 2) would not avoid any of the impacts of the Project. Furthermore, Alternative 2 would not meet the timeline for the potential housing sites to be considered as some would take longer than the deadline to be acquired and assessed for potential significant impacts. Additionally, some of the potential sites have been ruled out based on their size and the geologic risks they would pose to future developments. This alternative would propose development of potential housing sites that would require additional time to be acquired, sites that are not the optimal size, as well as sites that posed geologic risk.

The Rearranged Density of Residential Units Alternative (Alternative 3) would re-distribute the density within each site and would therefore result in similar impacts to the Project. However, since development would still occur on each site, the impacts associated with development would still occur and would not be avoided by this alternative. The Project has been designed to align with the vision and principles of the City as expressed in the General Plan Update, the Municipal Code, and through the collaborative process that formulated the Project. Alternative 3 would enable development in a rearranged form, which would not be possible with the allowed acreage for each site. Each site has been specifically designed for the appropriate number of residential units and mixed-use space to allow the maximum number of affordable housing units to be supplied. Alternative 3 would not be able to meet the objectives of the Project in terms of supplying the maximum amount of affordable housing.

The potentially significant impacts of the Project are associated with existing site conditions such as subsurface cultural resources and subsurface hydrocarbon contamination or with the urban context of Singal Hill, such as noise sensitive receptors. These conditions would be present at other sites within the City. In addition, the potential impacts identified in this EIR could be mitigated to a less than significant level. Alternative scenarios would likely incorporate similar mitigations. As such, there are no Alternatives which would be environmentally superior to the Project and would still achieve the objectives of the Project.



## 6.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

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Section 15128 of the CEQA Guidelines<sup>1</sup> requires that an EIR “contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore were not discussed in detail in the EIR.” An Initial Study (see **Appendix A** of this DEIR) was prepared and released with a Notice of Preparation (NOP) in May of 2021 that included the determination that an EIR would be prepared in compliance with CEQA to analyze potentially significant impacts that may result from the Project. The Initial Study also identified topics for which effects were determined not to be significant. The following section summarizes the findings of the Initial Study for those topics that were determined not to be significant and thus were not discussed in detail within this EIR.

### Aesthetics

The identified housing sites are located on infill sites as defined by Public Resource Code Section 21099 which states that aesthetic impacts of a residential or mixed-use residential project on an infill site within a transit priority area shall not be considered significant impacts on the environment. The area is considered a transit priority area (TPA) based on the SCAG map of TPAs for plan year 2045, developed for the SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and based on the bus services of Long Beach Transit.<sup>2</sup> As such, aesthetic impacts would be less than significant.

Furthermore, future housing development at the identified Housing Sites would be comparable in height to its surrounding developments, would be required to comply with the requirements of the building standards of the Signal Hill Municipal Code and would be subject to design review by the City to ensure compatibility with the surrounding area. As such, build out of the Housing Sites would not have an adverse effect on aesthetics.

### Agriculture and Forestry Resources

The City does not contain areas of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Farmland of Local Potential, Grazing Land, Forest or Timberland. As such, the development of housing on the identified housing sites would have no direct or indirect effect on agriculture or forestry resources.

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1 California Environmental Quality Act (CEQA) Guidelines, Section 15128.

2 SCAG. 2045 Transit Priority Areas (TPAs) - SCAG Region.  
[https://hub.arcgis.com/datasets/c6b4717526c247528d868c2fc046894d\\_3?geometry=-118.319%2C33.775%2C-118.102%2C33.825](https://hub.arcgis.com/datasets/c6b4717526c247528d868c2fc046894d_3?geometry=-118.319%2C33.775%2C-118.102%2C33.825). Accessed May 2021.

## Biological Resources

The identified Housing Sites are disturbed sites containing scattered ruderal vegetation and ornamental trees. The General Plan Environmental Resources Element does not identify any sensitive natural communities on or within the vicinity of the Housing Sites. There are no rivers or streams and no riparian habitat or any other kind of sensitive natural community in or within the immediate vicinity of the identified Housing Sites. The lands surrounding these sites are developed with streets, light industrial, educational, residential, and commercial uses, which have disturbed and replaced natural habitat. No portions of the City are located within a habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. The City of Signal Hill does have a street tree ordinance which establishes standards for the planting, removal, replacement, and maintenance of all City street trees in accordance with tree species recommendations contained in the Street Tree Master Plan.<sup>3</sup> Development of the Sites would not conflict with this ordinance. For these reasons, impacts would be less than significant.

## Hydrology and Water Quality

Housing development associated with the Project would be required to comply with the existing regulatory systems including permitting under California's WDRs and the National Pollutant Discharge Elimination System (NPDES) program. Further, the Signal Hill Municipal Code, Chapter 12.16, Storm Water/Urban Runoff, contains requirements for post-construction stormwater activities and facility operations of development and redevelopment projects to comply with the current Municipal Separate Storm Sewer System (MS4). In part, adherence requires integrating low-impact development (LID) design principles to lessen the water quality impacts of development through biofiltration, evapotranspiration, and rainfall harvest. Specifically, a LID plan would be required for each individual development project on the Housing Sites to demonstrate compliance with the provisions of the City's Municipal Code (Section 12.16.114, New development/redevelopment pollutant reduction).

Anticipated development of the Housing Sites does not include any groundwater extraction wells because all water demand would be met through piped connections to the City of Signal Hill's municipal water system. The housing sites do not feature any natural water features and are not within flood zones and are not close enough to bodies of water to be affected by Tsunami or seiche event. Based on the preceding, hydrology impacts would be less than significant.

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3 City of Signal Hill, Street Tree Ordinance. Accessed April 2021.  
<https://www.cityofsignalhill.org/DocumentCenter/View/774/2011-11-1441tree-ordADOPTED?bidid=>.

## Mineral Resources

The City's General Plan does not identify the Housing Sites as having significant mineral deposits of any kind, nor are they located in an area delineated as a mineral resource recovery site. The implementation of the Project could result in the deactivation of 26 active oil drilling wells. Given the extent of drilling activity within the Long Beach oil field, removal of the active wells on the housing sites would not result in the substantial loss of a mineral resource. As such, impacts would be less than significant.

## Recreation

The Project does not include any recreational facility. However, development of the Housing Sites would add approximately 1,355 new residents to the City. The City has assessed for foreseeable increase in population in the City and increased the parks and recreation fee accordingly to account for additional park land development. The City has plans to increase recreational facilities within the City limits. Implementation of the Housing Sites would not require the construction or expansion of recreational facilities outside of the existing and planned recreational facility upgrades. No adverse environmental effects are anticipated from the planned recreational facility upgrades associated with the population increase resulting from the Project.

## Utilities and Service Systems

Water, wastewater treatment, storm water drainage, electric power, natural gas, and telecommunication facilities exists within the City. Future Housing associated with the Project would connect to this existing infrastructure. The City's water supplies are considered to be stable and sufficient to support expected growth that could occur over the next several years. Signal Hill sanitary sewers connect to the City of Long Beach sewer line, which flows into regional wastewater facilities maintained by the Los Angeles County Sanitation District 29. Since population growth associated with the Project is consistent with the growth projections for City, it is expected that the additional wastewater flow associated with the Project can be accommodated within existing and planned facilities. Future residential development within the City would comply with the City's solid waste reduction programs, which are designed to comply with federal, state, and local statutes and regulations related to solid waste. Based on the above, the Project would not result in significant impacts to utilities or service systems.

## Wildfire

The City is not in or near a Fire Hazard Severity Zone (FHSZ), Local Responsibility Area (LRA) or State Responsibility Area (SRA). As such, the Project would not exacerbate wildfire risks or otherwise result in wildfire impacts.

## 7.0 OTHER CEQA CONSIDERATIONS

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This section of the Draft EIR considers and discusses other topics identified in the CEQA Guidelines, including significant unavoidable impacts, significant irreversible environmental changes, growth inducing effects and potential secondary effects that would result from the Project.

### 1. SIGNIFICANT UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126.2(c) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. No Significant unavoidable impacts have been identified. This Draft EIR includes proposed mitigation measures that would reduce all potentially significant effects to a less than significant level.

### 2. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2 (c) of the CEQA Guidelines requires that a Draft EIR include discussion of irreversible environmental change. The Guidelines indicates that “uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely” and “irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.” Impacts could consist of reduction in availability of resources; commitment of future generations to specific land uses; or accidents that cause irreversible damage.

The future development that could result from the Project would involve the commitment of resources necessary for construction. This could include nonrenewable resources such as fossil fuels. However, the Plan is not expected to significantly increase the amount or rate of consumption of these resources as compared to existing conditions throughout the City and the region.

Once established, land use patterns can be difficult to change. As such, the Project would likely commit future generations to the form of development envisioned by the Project. This commitment to a pattern of development is consistent with the vision of the City to expand housing opportunities and develop underdeveloped land with appropriate uses. As such, the commitments of resources for the Project is justified by the alignment of the Project with community goals.

### 3 GROWTH INDUCEMENT

Section 15126.2 (e) of the CEQA Guidelines, as amended, requires that a Draft EIR include discussion of the potential growth-inducing impacts of a project. However, under the provisions of Senate Bill (SB) 375, an EIR prepared for a residential or mixed-use residential project that is consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area in a sustainable communities strategy (SCS) is not required to reference, describe, or discuss growth inducing impacts. As the environmental effects of the Project are associated with residential and mixed-use residential development, discussion of growth-inducing impact is not required.

### 4. POTENTIAL SECONDARY EFFECTS

Section 15126.4(a)(1)(D) of the CEQA Guidelines requires:

*If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed.*

This DEIR contains mitigation measures to address potential impacts on cultural resources, geology and soils, hazards, noise, and tribal cultural resources

#### **Cultural Resources**

To mitigate potentially significant impacts on cultural resources, this DEIR identifies mitigation measures associated with evaluation and documentation of onsite cultural resources and artifacts. These measures would not have any additional effects beyond the site nor would have adverse effects not already considered in the analysis in this DEIR.

#### **Geology and Soils**

To mitigate potentially significant impacts due to effects of onsite geology and soils, this DEIR identifies mitigation measures associated with evaluation and structural design. These measures would not have any additional effects beyond the site nor would have adverse effects not already considered in the analysis in this DEIR.

#### **Hazards**

To mitigate potentially significant effects due to the existing subsurface contamination and hazardous substances, this DEIR identifies mitigation measures associated with site remediation. These activities would be conducted in accordance with existing regulations. Any soil removed and disposed of would be done in accordance with existing regulations. As such, These measures would not have any additional effects beyond the site nor would have adverse effects not already considered in the analysis in this DEIR.

**Noise**

To mitigate potentially significant construction noise, this DEIR identifies mitigation measures associated with construction management and equipment. These measures would not have any additional effects beyond managing the noise generated by construction activities.

**Tribal Cultural Resources**

To mitigate potentially significant impacts on potential subsurface tribal cultural resources, this DEIR identifies mitigation measures associated with monitoring, evaluation and handling of any resources unearthed during construction. These measures would not have any additional effects beyond the site nor would have an adverse effect not already considered in the analysis in this DEIR.

## 8.0 REFERENCES

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42 U.S.C § 7401, et seq.

42 USC sec. 11001 et seq., Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986.

Assembly Bill 1191, Ch. 276, Quimby Act.

Assembly Bill 1358; Government Code Sections 65040.2 and 65302.

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