Housing Incentive Program Expansion and 788 San Antonio Road Mixed-Use Project

Draft Environmental Impact Report

SCH#2019090070

prepared by

City of Palo Alto
Planning and Community Environment Department
250 Hamilton Avenue
Palo Alto, California 94301
Contact: Sheldon Ah Sing, Project Planner

prepared with the assistance of

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

July 2020

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Executive Summary

This document is an Environmental Impact Report (EIR) analyzing the environmental effects of the proposed Housing Inventive Program Expansion and 788 San Antonio Road Mixed-Use Project. This section summarizes the characteristics of the proposed project, alternatives to the proposed project, and the environmental impacts and mitigation measures associated with the proposed project.

Project Synopsis

Project Applicant

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Project Description

This EIR has been prepared to examine the potential environmental effects of the Housing Inventive Program Expansion and 788 San Antonio Road Mixed-Use Project. The following is a summary of the full project description, which can be found in Section 2, *Project Description*.

The proposed Housing Incentive Program (HIP) expansion area ("program area") includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road in the City of Palo Alto. The proposed project also involves a new development on two of the parcels within the program area. Those parcels are located on the northeast corner of the intersection of San Antonio Road and Leghorn Street at 788, 790, and 796 San Antonio Road (the "788 San Antonio Road project site" or "project site").

Proposed Zoning Code Amendment to Expand the Housing Incentive Program

The project would involve an amendment to Section 18 of the Palo Alto Municipal Code (PAMC) to allow the application of the Housing Inventive Program (HIP) to the 18 parcels within the program area. This would allow for increased density of multi-family residential development along San Antonio Road corridor.

The proposed text amendment would involve the following changes to the zoning regulations that apply to these properties:

- Allow a waiver for housing projects to exceed maximum Floor Area Ratio (FAR), up to 2.0

- Allow a waiver to exceed maximum site coverage
- Allow rooftop gardens to count towards required open space
- Exclude retail area from parking requirements
- Exempt certain area in subterranean garages from counting towards FAR
- Allow a waiver to reduce requirements related to preservation of existing retail space to allow for housing projects

Proposed Development at 788 San Antonio Road

In addition to the proposed amendment to the PAMC, the project would also involve development of two of the 18 parcels within the program area, at 788, 790, and 796 San Antonio Road. This development would involve the demolition of the two existing on-site one-story commercial structures and the construction of a four-story mixed-use structure with one retail tenant space, 102 dwelling units, and a two-level subterranean parking garage. Each floor would be arranged according to the same general footprint, with an empty rectangular space in the center to allow solar access to a proposed central courtyard at the first floor. Uses on the first floor would include a 1,803 square-foot retail space at the southwestern corner of the site and common areas along San Antonio Road, including a main entrance and lobby, mail room, bicycle parking rooms, and a bicycle repair room, and dwelling units arranged around the north, east, and south portions of the site. The floors above the first would include residential units arranged around the central courtyard space. Most units would include attached private outdoor balconies with views either towards the central courtyard or out towards the perimeters of the site. A communal landscaped roof garden would be located at the fourth floor at the western portion of the building along San Antonio Road.

Project Objectives

Housing Incentive Program Expansion Objectives

The following project objectives are specific to the proposed expansion of the Housing Incentive Program (HIP).

- Update the Palo Alto Municipal Code to remove barriers and disincentives to housing development at higher densities where appropriate near transit, jobs and services.
- Update the Palo Alto Municipal Code to encourage production of housing that is affordable to a range of income levels.
- Update the Palo Alto Municipal Code to allow housing production to meet the City of Palo Alto's Regional Housing Needs Assessment (RHNA).

788 San Antonio Road Mixed-Use Project Objectives

The following project objectives are specific to the proposed 788 San Antonio mixed-use development.

- Develop a high-density residential project to help the City make substantial progress toward its goal of generating 300 housing units per year and improve the jobs housing balance.
- Develop below market rate housing units to help the City satisfy its regional housing needs allocation of affordable units.
- Provide at least 1,800 square feet of on-site resident-serving retail.

- Apply the Housing Incentive Program (HIP) to the property to allow more housing to be developed on this housing opportunity site, as an alternative to the State Density Bonus Law.
- Provide bicycle parking on the ground level adjacent to the main lobby for ease of access and to encourage the use of alternative forms of transportation to nearby employment and transit.

Alternatives

As required by Section 15126.6 of the *CEQA Guidelines*, this section of the EIR examines a range of reasonable alternatives to the proposed project. The following alternatives are evaluated in this EIR:

- Alternative 1: No Project
- Alternative 2: Existing 788 San Antonio Road Building to Remain Plus New Building
- Alternative 3: Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area

Based on the alternatives analysis, overall, Alternative 2 is environmentally superior because it would eliminate the unavoidably significant cultural impact associated with demolition of an eligible historical resource.

Refer to Section 6, *Alternatives*, for the complete alternatives analysis.

Areas of Known Controversy

The EIR scoping process identified several areas of known controversy for the proposed project including traffic congestion, noise, hazards, historic resources, and land use and planning. Responses to the Notice of Preparation of a Draft EIR are summarized in Section 1, *Introduction*.

Issues to be Resolved

There are no issues to be resolved that have been identified.

Issues Not Studied in Detail in the EIR

As indicated in the Initial Study (Appendix B of this EIR), there is no substantial evidence that significant impacts would occur to the following issue areas: Aesthetics, Agriculture and Forestry Resources, Hydrology/Water Quality, Land Use and Planning, Mineral Resources, Population/Housing, Public Services, Recreation, Utilities/Service Systems, and Wildfire. Impacts related to those issue areas would be less than significant without mitigation. As indicated in the Initial Study, impacts related to Biological Resources, Geology and Soils, Hazards and Hazardous Materials, and Tribal Cultural Resources would be less than significant mitigation incorporated but further analysis was not required in an EIR. Mitigation measures for those issue areas are listed below in Table ES-1 and will be carried forward into the Mitigation Monitoring and Reporting Program. Impacts related to Air Quality, Cultural Resources, Energy, Greenhouse Gas Emissions, Noise, and Transportation were found to be potentially significant and are addressed in this EIR.

Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts of the proposed project, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if required).

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the CEQA Guidelines.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under §15091 of the CEQA Guidelines.
- **Less than Significant.** An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact:** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Air Quality			
Impact AQ-1. Development under the HIP expansion, including the 788 San Antonio Road Project, could result in air pollution emissions that would be inconsistent with the 2017 BAAQMD Clean Air Plan, which is the applicable Air Quality Plan. The 788 San Antonio Road development alone would be consistent with the objectives of the 2017 Clean Air Plan. However, construction of projects in the HIP expansion area would potentially exceed BAAQMD thresholds for criteria pollutants and conflict with the Clean Air Plan. This impact would be less than significant with mitigation incorporated.	Mitigation Measure AQ-1 described under Impact AQ-2.	Yes (Less than significant with mitigation).	No (Less than significant without mitigation).
Impact AQ-2. Construction and operation of the 788 San Antonio Road project would not result in emissions of criteria pollutants in excess of BAAQMD thresholds and the project would be in compliance with BAAQMD carbon monoxide thresholds. However, construction of future projects under the HIP expansion could potentially exceed BAAQMD standards for criteria pollutants. This impact would be less than significant with mitigation incorporated.	**AQ-1 Construction Mitigation.** For individual projects in the HIP expansion area that exceed the BAAQMD air pollutant and precursor screening levels, the project proponent for that particular development shall conduct a quantifiable analysis to measure construction-related impacts to air quality for all construction phases as described in the BAAQMD CEQA Guidelines (2017). If project construction would exceed BAAQMD thresholds for criteria pollutants, the City shall require the construction contractor(s) to implement additional BAAQMD-approved measures beyond Basic Control requirements and demonstrate that such measures would reduce emissions to below thresholds. Additional measures for development projects that exceed significance criteria may include, but are not limited to: 1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. 2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. 3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.	Yes (Less than significant with mitigation).	No (Less than significant without mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. 5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time. 6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site. 7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12-inch compacted layer of wood chips, mulch, or gravel. 8. Minimizing the idling time of diesel-powered construction equipment to two minutes. 9. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. 10. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings). 11. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_X and PM. 12. Limiting import/export of soils or limiting the number of hauling trips per day to reduce emissions of NO_X associated with hauling truck trips. 13. Phasing construction activities to reduce daily equipment use.		

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Impact AQ-3. Development in the HIP expansion area, including the 788 San Antonio Road Project, would not create new stationary sources of toxic air contaminant (TAC) emissions. Construction of projects in the program area would not expose sensitive receptors to substantial concentrations of TACs with implementation of Mitigation Measure AQ-1. Development in the HIP expansion area would introduce new sensitive receptors near sources of TAC emissions, but compliance with existing City of Palo Alto requirements for using best practices for air filtration recommended by the BAAQMD would reduce impacts to less than significant. This impact would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact AQ-4. Projects in the HIP expansion area, including the 788 San Antonio Road Project, would not involve uses that generate substantial odors. Construction activities, specifically operation of heavy equipment, may generate odors. However, this odor generation would be temporary in nature, limited to the duration of construction activities on individual project sites. This impact would be less than significant	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Biological Resources			
The project may result in impacts to protected nesting bird species. This impact would be significant but mitigable. (*See Section 4, Biological Resources, of the Initial Study)*	**BIO-1 Nesting Bird Surveys and Avoidance.** Construction, grading, site preparation and other ground-disturbing activities required for development allowed by the proposed HIP expansion that would involve vegetation or tree removal shall be prohibited during the general avian nesting season (February 1 – August 31), if feasible. If nesting season avoidance is not feasible, the applicant shall retain a qualified biologist, as approved by the City of Palo Alto, to conduct a preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the development site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the MBTA and CFGC, nesting bird surveys shall be performed not more than 14 days prior to scheduled vegetation clearance and structure demolition. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines and a minimum buffer of 250 feet for raptors) shall be established around such active nests and no construction shall be allowed within the buffer areas until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest). No ground disturbing activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring between August 31 and February 1.		
Cultural Resources			
Impact CUL-1. The project would result in demolition and removal of two existing single-story commercial buildings at 788 and 790-796 San Antonio Road. Due to its retained integrity, one existing structure at 788 San Antonio Road may be eligible for individual listing in the CRHR and constitutes a historical resource for the purposes of CEQA. Further, development in the rest of the program area under the HIP expansion could result in the demolition or modification of structures eligible for listing on the City's historic inventory or CRHR Therefore, impacts to historic resources would be significant and unavoidable.	**CUL-1 Historic Resource Evaluation**. For future projects in the program area that would involve demolition or modification of structures over 45 years in age, a Historic Resources Evaluation (HRE) shall be prepared by a qualified professional to determine the structure's eligibility for listing on the local or state historic registers. The report shall be submitted to the Planning Director and will be utilized by staff in their evaluation of the project and CEQA review. If the structure is determined to be eligible for listing on the local or state register, Mitigation Measure CUL-2 shall be implemented. **CUL-2 Rehabilitation and Restoration.** For future projects in the program area that involve modification of structures determined to be eligible for listing on the City's historic inventory or CRHR, prior to submittal for building permits, a qualified historic preservation architect shall review the plans for the modifications to verify that the work is in keeping with applicable Secretary of the Interior's Standards for Rehabilitation, such that the original materials and character-defining features will be retained and rehabilitated. The final design and materials associated with building modifications shall be reviewed and approved by the Director and the Historic Preservation Planner of the City of Palo Alto Planning and Community Environment Department. **CUL-3 Historic Documentation Package**. Prior to issuance of demolition permits for the 788 San Antonio Road Mixed-Use Project, the applicant shall undertake Historic American Building Survey (HABS) documentation of the structure including its character defining features. The documentation should generally follow the HABS Level III requirements and include measured drawings that depict the size, scale, and dimensions of the subject property; digital photographic recordation of the interior and exterior of the subject property including all character-defining-features; a detailed historic narrative report; and compilation of historic research. The documentation shall be undertaken by a qualified professional who meets the standards for history, architectural history, or architecture (as	Mitigation Measure CUL-1 would apply and should structures be found eligible, mitigation measures CUL-2 would apply. Impacts would be less than significant with mitigation.	The proposed 788 San Antonio Road project would be required to implement mitigation measures CUL-3 and CUL-4. Nonetheless, impacts would be significant and unavoidable with mitigation.

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	appropriate), as set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR, Part 61). The original archival-quality documentation shall be offered as donated material to the City of Palo Alto Historic Inventory where it would be available for current and future generations. Archival copies of the documentation also shall be submitted to the City of Palo Alto Library where it would be available to local researchers. Completion of this mitigation measure shall be monitored and enforced by the City. **CUL-4 Interpretive Website.** Prior to issuance of demolition permits for the 788 San Antonio Road Mixed-Use Project, the applicant shall develop an online interpretive website that displays materials concerning the history and architectural features of the property. Interpretation of the site's history shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and may engage additional consultants to develop the display. The interpretative website, which may include, but are not limited to, a display of photographs, news articles, memorabilia, and/or video. The site shall be overseen by Palo Alto Historic Association, a similar non-profit, or the City of Palo Alto at the applicant's expense. The content of the site shall be approved by the Director of Planning & Development Services or designee.		
Project grading and other ground-disturbing activities could result in impacts to previously unidentified archaeological resources. This impact would be significant but mitigable. *(See Section 5, Cultural Resources, of the Initial Study)*	**CR-1 Worker's Environmental Awareness Program (WEAP).** For all development subject to the proposed HIP expansion, a qualified archaeologist shall be retained who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology to conduct WEAP training for archaeological sensitivity for all construction personnel prior to the commencement of ground disturbing activities. Archaeological sensitivity training should include a description of the types of cultural resources that may be encountered, cultural sensitivity issues, regulatory issues, and the proper protocol for treatment of the materials in the event of a find. **CR-2 Unanticipated Discovery of Cultural Resources**. For all development subject to the proposed HIP expansion, in the event that archaeological resources are unearthed during project construction, all earth-disturbing work near the find must be temporarily suspended or redirected until an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (NPS 1983) has evaluated the nature and significance of the find. If the discovery proves to be significant under CEQA, additional work, such as preservation in place or archaeological data recovery, shall occur as required by the archeologist in coordination with City staff and descendants and/or stakeholder groups, as warranted. Once the resource has been properly treated or protected, work in the area may resume. A Native American representative shall be retained to monitor mitigation work associated with Native American cultural material.	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Energy			
Impact E-1. Projects implemented in the HIP expansion area, including the 788 San Antonio Road Project, would consume electricity, natural gas, and fuel during construction and operation. However, new development in the program area would not place significant additional demand on City of Palo Alto Utilities and would be required to comply with applicable conservation standards. Neither construction nor operation of new development would result in wasteful, inefficient, or unnecessary consumption of energy. Impacts would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact E-2. The hip expansion and the 788 San Antonio Road Project would not conflict with or obstruct state regulations or the Palo Alto Comprehensive Plan or Sustainability and Climate Action Plan. This impact would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Geology and Soils			
The program area and project site are in an area that may be underlain by soils susceptible to liquefaction. Impacts related to liquefaction and unstable soils would less than significant with mitigation incorporated. *(See Section 7, Geology and Soils, of the Initial Study)*	**GEO-1 Geotechnical Investigation.** Prior to approval of grading permits for a building or structure associated with the development allowed by the HIP expansion, a detailed final geotechnical investigation shall be performed to identify significant geotechnical constraints on the proposed development. The report shall develop formal recommendations for project design and construction, including site grading/soil preparation and foundation design. Among other components, the report shall include a quantitative evaluation of liquefaction susceptibility, including projected levels of post-liquefaction settlement; an evaluation of soil shrink-swell potential; and an investigation of compressible soils that may be prone to settlement/subsidence. The report shall be stamped and signed by a professional engineer (PE) or geotechnical engineer and provided by the applicant to the City of Palo Alto for review to ensure that foundations designed for all proposed structures are appropriate and meet code requirements. The PE or geotechnical engineer of record shall also review the final grading, drainage, and foundation plans to confirm incorporation of the report recommendations. Field	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	monitoring during project construction shall be performed to verify that the work is performed as recommended.		
Construction activities associated with development in the program area could involve ground disturbance and excavation that could result in the unanticipated discovery of paleontological resources. In addition, excavation at depths greater than 18 feet would involve removal of soils beyond the alluvial fan deposits and are more likely to result in the discovery of paleontological resources. Impacts to paleontological resources would be less than significant with mitigation incorporated. *(See Section 7, Geology and Soils, of the Initial Study)*	**GEO-2 Discovery of Paleontological Resources.** Construction activities associated with the development allowed under the HIP expansion shall adhere to the following measures. **1. Ground Disturbance.** Prior to ground-disturbing activities for projects associated with the HIP expansion, the applicant or its designee will retain a qualified paleontologist to provide on-call services in the event of an unanticipated discovery. A qualified professional paleontologist is defined by the SVP standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years (SVP 2010). Prior to the start of construction, the qualified paleontologist or his or her designee shall conduct a Paleontological Worker Environmental Awareness Program (WEAP), a training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a Qualified Paleontologist shall attend. In accordance with SVP (2010) guidelines, in the event that undetected buried resources are encountered, all work shall halt in the immediate vicinity of the find and the qualified professional paleontologist shall be notified to evaluate the discovery. The qualified paleontologist shall determine the significance of the discovery and identify whether additional mitigation or treatment is warranted. Measures may include testing, data recovery, reburial, archival review and/or transfer to the appropriate museum or educational institution. All testing, data recovery, reburial, archival review or transfer to research institutions related to monitoring discoveries shall be determined by the qualified paleontologist and shall be reported to the City. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. **2. Excavation Below 18 Feet.** Prior to the commencement of grading and excavation below a depth of 18 feet for any project associated with the HIP expansion, applicants shall retain a qualified paleontologist approved by the City of Palo Alto to monitor grading and excavation activities. Full-time monitoring onsite shall occur whenever excavation activities exceed 18 feet below ground surface. The duration and timing of the monitoring will be determined by the qualified paleontologist and the location and extent of proposed ground disturbance. If the qualified paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, he/she may recommend that monitoring be reduced to	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	periodic spot-checking or cease entirely. Any paleontological resources discovered by construction personnel or subcontractors shall be reported immediately to the paleontologist. In the event undetected buried resources are encountered during grading and excavation, all work in the immediate vicinity of the find shall cease and the paleontologist shall evaluate the resource and propose appropriate mitigation measures. Measures may include testing, data recovery, reburial, archival review and/or transfer to the appropriate museum or educational institution. All testing, data recovery, reburial, archival review or transfer to research institutions related to monitoring discoveries shall be determined by the qualified paleontologist and shall be reported to the City.		
Greenhouse Gas Emissions			
Impact GHG-1. Assuming full buildout of the program area, operation of future projects under the HIP expansion would not exceed the BAAQMD GHG service-population threshold. Individually, operation of the 788 San Antonio Road project also would not exceed that threshold. Therefore, this impact would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact GHG-2. The HIP expansion, including the 788 San Antonio Road project, would generally be consistent with most of the applicable goals and GHG reduction measures of the 2017 Scoping Plan, Plan Bay Area 2040, City of Palo Alto Sustainability and Climate Action Plan. However, the HIP expansion would not be consistent with trip reduction measures in the 2017 Scoping Plan. Mitigation Measure GHG-1 would ensure consistency with trip reduction goals. Therefore, this impact would be less than significant with mitigation.	**GHG-1. Transportation Demand Management Plan.** For future projects in the program area, the project applicant shall prepare a Transportation Demand Management (TDM) Plan for City of Palo Alto review and approval prior to occupancy to reduce the automobile traffic demand generated by the project. Potential strategies that may be considered include, but shall not be limited to: ▪ Coordinate with Santa Clara Valley Transportation Authority (VTA) to provide additional stops and service in or near the program area and project site ▪ Provide bike lockers, showers, and personal lockers onsite to encourage bicycling to the site; encourage commercial tenants and residential property managers to provide shared bicycles that residents and employees can use during the day for errands ▪ Encourage a local car share company (Getaround, Zipcar, etc.) to locate a car share pod at the project site or in close proximity to the site to provide an option for employees or residents who may need a car for intermittent travel but not daily commuting ▪ Coordinate with City of Palo Alto, City of Mountain View, and/or other regional agencies to allow installation of a bike share station along the project frontage on San Antonio Road or Leghorn Street ▪ Provide preferential carpool parking	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	▪ Provide full or partial transit subsidy to employees and residents ▪ Provide pre-tax commuter benefits for employees ▪ Regularly distribute information on non-automobile commuting options to project employees and residents		
Hazards and Hazardous Materials			
Based on these existing conditions, construction activities associated with the higher-density housing allowed by the HIP expansion, including excavation to accommodate foundations and subterranean structures, could expose construction workers or nearby residents to potentially unacceptable health risks from contaminated soil. Moreover, hauling of such materials may occur within 0.25 mile of schools. Impacts related to hazardous materials would be less than significant with mitigation incorporated. *(See Section 9, Hazards and Hazardous Materials, of the Initial Study)*	**HAZ-1 Site Risk Management Plan.** Prior to issuance of permits allowing groundwater dewatering or earth-disturbing activity, the developer shall prepare a site risk management plan (SRMP). The SRMP will address known and unknown environmental issues that may be encountered during development. The plan shall identify appropriate measures to be followed when impacted soil and groundwater are encountered during demolition, excavation, dewatering, and construction. This includes health and safety measures to reduce exposure to potentially impacted soil and groundwater for construction workers and dust control measures to reduce exposure to contaminated dust particles for nearby residents. Health and safety measures shall include the required personal protective equipment (PPE) to be used by site personnel, including action levels and decision criteria for upgrading the levels of PPE. The SRMP shall also identify personnel to be notified, emergency contacts, and a sampling protocol if impacted media is encountered. The excavation and demolition contractors shall be made aware of the possibility of encountering known and unknown hazardous materials including impacted soil and groundwater; and shall be provided with appropriate contact and notification information. The plan shall include a provision stating at what point it is safe to continue with the excavation or demolition, and identify the person authorized to make that determination. In addition, the SRMP shall include measures for the appropriate handling and profiling of impacted soil and groundwater to be removed from the project site and disposed offsite. Removal, transportation, and disposal of impacted soil and groundwater shall be performed in accordance with applicable federal, state, and local laws, regulations, and ordinances. The SMRP shall be submitted to the City of Palo Alto for review and approval prior to issuance of a grading or building permit. If deemed necessary by City staff, the SRMP shall also be submitted to the Santa Clara County Department of Environmental Health for review and oversight.	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Noise			
Impact N-1. The construction of projects under the proposed HIP expansion, including the 788 San Antonio Road Project, would temporarily increase ambient noise levels at sensitive receptors in and near the program area. This impact would be less than significant with mitigation incorporated.	**N-1 Construction-Related Noise Reduction Measures**. The applicant shall apply the following measures during construction of projects in the program area: ▪ *Mufflers.* Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. During construction, all equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards. ▪ *Electrical Power.* Electrical power, rather than diesel equipment, shall be used to run compressors and similar power tools and to power temporary structures, such as construction trailers or caretaker facilities. ▪ *Equipment Staging.* All stationary equipment (e.g., air compressors, portable generators) shall be staged as far away from sensitive receptors as feasible. Where feasible, construct temporary noise barriers around stationary equipment in a manner that fully blocks the line of sight to residential windows in the adjacent apartment complex. ▪ *Equipment Idling.* Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use. ▪ *Workers' Radios.* All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity. ▪ *Smart Back-up Alarms.* Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction. ▪ *Sound Barrier.* During the demolition, site preparation, grading, building, and paving phases of construction, temporary sound barriers shall be installed and maintained facing sensitive receptors (e.g., residential units, educational facilities) located within 100 feet of the center of construction activity. Temporary sound barriers shall, at a minimum, block the line of sight between noise-generating construction equipment and adjacent windows at sensitive receptors and shall be placed as close to the source equipment as feasible. Such barriers shall be field tested to reduce noise by at least 10 dBA at sensitive receptors. A sound barrier	Yes (Less than significant with mitigation).	Yes (Less than significant with mitigation).

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
	can achieve a 5 dBA noise level reduction when it is tall enough to break the line-of-sight from the source equipment to the sensitive receptor, and it can achieve an approximate 1 dBA additional noise level reduction for each 2 feet of height after it breaks the line of sight (FHWA 2011). Mobile sound barriers may be used as appropriate to attenuate construction noise near the source equipment. ▪ *Disturbance Coordinator*. The applicant shall designate a disturbance coordinator who shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.		
Impact N-2. On-site activities during the operation of residential projects in the program area, including the 788 San Antonio Road Project, would generate noise levels that may periodically be audible to existing uses near the project site. The project would also increase traffic noise on area roadways and would generate on- and off-site noise from mail and delivery trucks travelling to and from the site. However, these noise levels would not exceed applicable standards. Impacts would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact N-3. The construction of projects in the program area, including the 788 San Antonio Road Project, would intermittently generate groundborne vibration. However, maximum vibration levels at sensitive receptors and structures would not exceed applicable Caltrans criteria. This impact would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Transportation			
Impact T-1. The proposed HIP expansion and 788 San Antonio Road Project would not conflict with applicable policies addressing transit, roadway, bicycle, and pedestrian facilities. This impact related to transit, bicycle and pedestrian facilities would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact T-2. Vehicle miles traveled (VMT) attributable to the HIP expansion and 788 San Antonio mixed-use project would not exceed the City's thresholds for residential or local serving retail projects. Therefore, the impact related to VMT would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact T-3. The proposed HIP expansion and 788 San Antonio Road Mixed-use Project would not introduce design features or incompatible uses that could increase traffic hazards. This impact would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.
Impact T-4. The project would result in adequate emergency access to properties in the program area and would not substantially affect response times. The impact on emergency access would be less than significant.	No mitigation required.	Less than significant without mitigation.	Less than significant without mitigation.

Impact	Mitigation Measure (s)	Mitigation Applies (Yes/No) and Residual Impact	
		HIP Expansion Area	788 San Antonio Road Project
Tribal Cultural Resources			
There is the possibility of encountering undisturbed subsurface tribal cultural resources during demolition and construction activities. This impact would be less than significant with mitigation incorporated. *(See Section 18, Tribal Cultural Resources, of the Initial Study)*	**TCR-1 Unanticipated Discovery of Tribal Cultural Resources.** In the event that cultural resources of Native American origin are identified during construction of any development associated with proposed HIP expansion, all earth-disturbing work in the vicinity of the find must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find and an appropriate Native American representative, based on the nature of the find, is consulted. If the County, in consultation with local Native Americans, determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. The plan would include avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the archeologist, if applicable, and the appropriate Native American tribal representative.		

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1 Introduction

This document is an Environmental Impact Report (EIR) for a proposed City of Palo Alto Zoning Ordinance amendment to allow the application of the Housing Incentive Program (HIP) to 18 parcels ("program area") along San Antonio Road between East Charleston Road and Middlefield Road in the City of Palo Alto. The proposed project also involves construction of a new mixed-use development on a site currently occupied by two one-story commercial structures and surface parking lots in the center of the program area at 788-796 San Antonio Road ("project site"). This project would involve demolition of the existing buildings, removal of the paved parking lot and construction of a four-story mixed-use residential and retail structure. Other components of the project include two levels of subterranean parking, retail tenant space, private outdoor balconies, communal landscaped roof garden, bike parking and storage, and parking for building occupants.

This section discusses (1) the project and EIR background; (2) the legal basis for preparing an EIR; (3) the scope and content of the EIR; (4) issue areas found not to be significant by the Initial Study; (5) the lead, responsible, and trustee agencies; and (6) the environmental review process required under the California Environmental Quality Act (CEQA). The proposed project is described in detail in Section 2, *Project Description*.

1.1 Environmental Impact Report Background

The City of Palo Alto distributed a Notice of Preparation (NOP) of the EIR for a 30-day agency and public review period starting on September 4, 2019 and ending on October 7, 2019. The City received three written letters in response to the NOP during the comment period. The NOP and NOP responses are presented in Appendix A of this EIR. Table 1-1 summarizes the content of the NOP response letters and describes how and where the issues raised are addressed in the EIR.

In addition, the City held an EIR Scoping Meeting on September 11, 2019. The meeting was aimed at providing information about the proposed project to members of public agencies, interested stakeholders and residents/community members. The meeting was held at 6:00 p.m. in the City of Palo Alto Council Chambers located in City Hall at 250 Hamilton Avenue. Several commenters provided verbal comments at the scoping meeting. Table 1-2 summarizes the verbal comments received and describes how and where the issues raised are addressed in the EIR.

Table 1-1 Written NOP Comments and EIR Response

Commenter	Comment/Request	How and Where it was Addressed
Native American Heritage Commission	This comment letter is a summary of requirements under state law related to cultural resources and Native American tribal outreach.	Section 5, *Cultural Resources,* and Section 18, *Tribal Cultural Resources,* in the Initial Study (Appendix B of this EIR) include an explanation of how the project complies with the applicable requirements described in the letter.
Leigh F. Prince on behalf of 788 SAPA Land LLC (the applicant for the 788 San Antonio Road component of the project).	**Project Description** The commenter states that the Project Description in the EIR should separately describe and identify impacts associated with (1) applying the HIP to the project site and the proposed project and (2) applying the HIP to the larger area of CS zoned properties along San Antonio Road between Middlefield and East Charleston Road. The commenter states that the project description is not clear in the distinction of these two separate projects. **Alternatives** The commenter states that alternatives to the proposed project should consider only where the HIP is applied to the project site and not to the HIP CS zoned properties. Additionally, the commenter states that the EIR should consider an alternative that applies a 1.5 FAR consistent with the HIP that applies in Downtown Palo Alto and on El Camino Real. **Historic Preservation** The commenter states that the building planned for demolition under the proposed project does not qualify as a historic resource and therefore would not need to be treated as a significant effect on the environment if the site is not essential to specific cultural activities. The commenter therefore states that the applicant anticipates that there is either no historical resource impact or that there is feasible mitigation available to allow the demolition of the structure. **Fair Share Mitigation** The commenter states that this EIR should ensure that the proposed residential project is not required to pay fair share mitigation for impacts that may result from the redevelopment of surrounding properties to which the HIP would also be applied. The commenter states that the applicant should only be required to pay its fair share of mitigation costs to reduce impacts specific to the proposed project.	**Project Description** Section 2, *Project Description,* of this EIR explains both components of the proposed project including 1) the HIP expansion, and 2) the 788 San Antonio Road Mixed-Use Project. The proposed project involves an amendment to the PAMC to allow the application of the City's Housing Incentive Program (HIP) at the project site. As the amendment would also apply to the other CS-zoned properties along San Antonio Road between Middlefield Road and Charleston Road, the Draft EIR analyzes both the impacts related to the proposed development at the project site, and the impacts related to the PAMC amendment. Separate impact analyses for both components are provided throughout this EIR. **Alternatives** Section 6, *Alternatives,* of this EIR describes the alternatives analyzed. This section also describes alternatives considered but rejected, including the commenter's suggested alternative. **Historic Preservation** To support preparation of this environmental analysis, the building at 788 San Antonio Road was evaluated and found eligible for listing in the California Register of Historical Resources (CRHR); it therefore is a historical resource pursuant to §15064.5 of the CEQA Guidelines. As addressed in Section 4.2, *Cultural Resources*, of this EIR, the proposed project would result in the demolition of the physical features which convey the reasons for its historical significance and justify its inclusion in the CRHR. Demolition by its nature is complete and total material impairment of the historical resource, and no feasible mitigation measures are available to mitigate the demolition of the CEQA historical resources to a less-than-significant level. As a result, demolition of the individually eligible resource would be considered a significant and unavoidable adverse impact. **Fair Share Mitigation** As described above, Section 2, *Project Description,* of this EIR states that the Draft EIR analyzes impacts related to the proposed development at the project site as well as impacts related to the PAMC amendment to allow for the application of the HIP to the surrounding 18 parcels. Therefore, the mitigation measures identified in the Draft EIR would reduce impacts that may result from the proposed PAMC amendment and subsequent redevelopment of surrounding properties. The Draft EIR specifies which

Commenter	Comment/Request	How and Where it was Addressed
		mitigation measures apply to the proposed 788 San Antonio Road project. The proposed residential project would not be required to pay fair share mitigation for impacts that may result from the HIP expansion as a whole.
John Petrilla	The commenter states that a change in requirements for the proposed project to permit 102 units would also then apply to larger developments on adjacent properties. The commenter states that the residents of the new housing will need to travel to school and work, which would add to a strain on existing transportation networks. The commenter states that because public transit options are limited and bike travel appears hazardous, most residents will likely choose to use personal cars. The commenter also states that the proposed project would increase the number of children travelling across San Antonio and Middlefield Road to access schools and public parks. The commenter summarizes these concerns by stating that generally more traffic and traffic hazards are to be expected in the area. The commenter requests a mitigation plan for the proposed project that would address traffic increases and consider schools, parks and recreation impacts. The commenter states that the proposed project design should include rooftop gardens and include sufficient parking for residents. The commenter requests that the proposed project should include sufficient trash and recycling services. The commenter also requests that additional space for delivery and moving vans is made available onsite. The commenter states that double paned windows as a noise reduction strategy would be necessary as San Antonio Road can generate excessive noise.	Section 2, *Project Description,* of this EIR notes that the proposed project would involve an amendment to the PAMC to allow the application of the City's HIP at the project site, which would allow the density of the proposed development. As the amendment would also apply to the other CS-zoned properties along San Antonio Road between Middlefield Road and Charleston Road, the Draft EIR analyzes impacts related to the proposed development at the project site and impacts related to the PAMC amendment that would facilitate other development projects along the San Antonio Road corridor. See Section 4.6, *Transportation,* of this EIR for analysis of transportation impacts. While comments related to the project design (rooftop gardens, parking, trash and recycling) are not specifically relevant to the analysis of this document as required under CEQA, some of these comments are addressed in this document. Section 2 notes that the proposed development would include a rooftop garden above the fourth floor. Section 11, *Land Use Planning*, of the Initial Study (Appendix B of this EIR) describes that the project would require approval of a parking reduction, subject to the requirements of PAMC Section 18.52.050, including the demonstrated reduction of off-street parking demand created by transportation and parking alternative programs. See Section 4.5, *Noise,* of this EIR for analysis of noise impacts.

Table 1-2 Verbal NOP Comments and EIR Response

Comment/Request	How and Where it was Addressed
A Safe Routes to Work analysis and program should be added to the EIR scope that includes protected bike lanes on San Antonio Road and within the commute routes for residents.	A Safe Routes to Work analysis is not specifically required under CEQA. However, an analysis of transportation impacts, including traffic near the project site as well as impacts related to bicycle and pedestrian safety, is included in Section 4.6, *Transportation,* of this EIR.
General concern about increased traffic along San Antonio Road that would result from the proposed project.	Impacts related to traffic congestion are addressed in Section 4.6, *Transportation,* of this EIR.
The EIR should include a hazards and hazardous materials section.	Impacts related to hazards and hazardous materials are discussed in Section 9, *Hazards and Hazardous Materials,* of the Initial Study (Appendix B of this EIR). Impacts related to hazards and hazardous materials were found to be less than significant with mitigation incorporated.
The scope of the project is limited in regard to providing for additional recreational amenities in a residential development. The potential impacts related to recreation should be addressed in the EIR.	Impacts related to recreation are discussed in Section 16, *Recreation,* of the Initial Study (Appendix B of this EIR). Impacts related to recreation were found to be less than significant.
There is some ambiguity regarding what school district the parcel is located in, and asks that schools are considered in the EIR.	All parcels in the program area are served by Palo Alto Unified School District. Impacts related to school facilities are discussed in Section 15, *Public Services*, of the Initial Study (Appendix B of this EIR). Impacts related to schools were found to be less than significant.
The project should improve connectivity with the existing bicycle network.	Impacts related to the bicycle network are discussed in Section 4.6, *Transportation*, of this EIR.
Existing uses and recent projects in the City of Mountain View should be considered through the analysis of the proposed project.	As described in Section 3, *Environmental Setting*, of this EIR, CEQA requires EIRs to consider potential cumulative impacts of the proposed project. CEQA defines "cumulative impacts" as two or more individual impacts that, when considered together, are substantial or will compound other environmental impacts. Cumulative impacts are the combined changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. Currently planned and pending projects in Palo Alto and surrounding areas, including the City of Mountain View, are listed in Table 3-1 of the Draft EIR. Each section of the Draft EIR includes a discussion of cumulative impacts as it pertains to each resource area that can be found at the end of the impact section.

1.2 Purpose and Legal Authority

The proposed project requires the discretionary approval of the City of Palo Alto City Council; therefore, the project is subject to the environmental review requirements of CEQA. In accordance with Section 15121 of the *CEQA Guidelines* (California Code of Regulations, Title 14), the purpose of this EIR is to serve as an informational document that:

> "...will inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project."

This EIR is a Program EIR for the HIP expansion pursuant to Section 15168 of the CEQA Guidelines. As stated in this section of the CEQA Guidelines, a Program EIR is appropriate when a project can be characterized as one large project consisting of a series of actions that are related either

geographically; as logical parts in a chain of contemplated actions; in connection with rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Although the legally required contents of a Program EIR are the same as those of a Project EIR, Program EIRs are typically more conceptual and may contain a more general discussion of impacts, alternatives, and mitigation measures than a Project EIR. As provided in Section 15168 of the CEQA Guidelines, a Program EIR may be prepared on a series of actions that may be characterized as one large project. Use of a Program EIR provides the City (as Lead Agency) with the opportunity to consider broad policy alternatives and program-wide mitigation measures and provides the City with greater flexibility to address environmental issues and/or cumulative impacts on a comprehensive basis.

In practice, this Program EIR could be utilized as a first tier of environmental review for subsequent activities that include site-specific environmental review of new development projects in accordance with the HIP expansion. In addition, this EIR could be utilized for the purposes of CEQA review for the proposed 788 San Antonio Road project. For future projects in the program area, if new effects could occur due to project discrepancies when compared to the program, or due to a change in baseline conditions, an EIR or a Negative Declaration would be required for the specific future project. Prior to the issuance of any entitlements for future development associated with the subsequent tier projects, the City must determine either that the Program EIR analysis is sufficiently specific and comprehensive to cover future projects, or require additional environmental review and documentation. Subsequent environmental review could be limited to project-level impacts which (a) were not examined in this Program EIR, and (b) would be more significant than described in this Program EIR.

This EIR serves as an informational document for the public and for the City of Palo Alto decision makers. The process will include public hearings before the Planning and Transportation Commission to consider certification of a Final EIR and approval of the proposed project.

1.3 Scope and Content

This EIR addresses impacts identified by the Initial Study to be potentially significant. The following issues were found to include potentially significant impacts and have been studied in the EIR:

- Air Quality
- Cultural Resources
- Energy
- Greenhouse Gas Emissions/Climate Change
- Noise
- Transportation

In preparing the EIR, use was made of pertinent City policies and guidelines, certified EIRs and adopted CEQA documents, and other background documents. A full reference list is contained in Section 7, *References and Preparers*.

The alternatives section of the EIR (Section 6) was prepared in accordance with Section 15126.6 of the *CEQA Guidelines* and focuses on alternatives that are capable of eliminating or reducing

significant adverse effects associated with the project while feasibly attaining most of the basic project objectives. In addition, the alternatives section identifies the "environmentally superior" alternative among the alternatives assessed. The alternatives evaluated include the CEQA-required "No Project" alternative and three alternative development scenarios for the project area.

The level of detail contained throughout this EIR is consistent with the requirements of CEQA and applicable court decisions. Section 15151 of the *CEQA Guidelines* provides the standard of adequacy on which this document is based. The *Guidelines* state:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure.

1.4 Lead, Responsible, and Trustee Agencies

The *CEQA Guidelines* define lead, responsible and trustee agencies. The City of Palo Alto is the lead agency for the project because it holds principal responsibility for approving the project.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the project. There are no responsible agencies for this project, and no discretionary approval from other public agencies is required.

A trustee agency refers to a state agency having jurisdiction by law over natural resources affected by a project. There are no trustee agencies for the proposed project.

1.5 Environmental Review Process

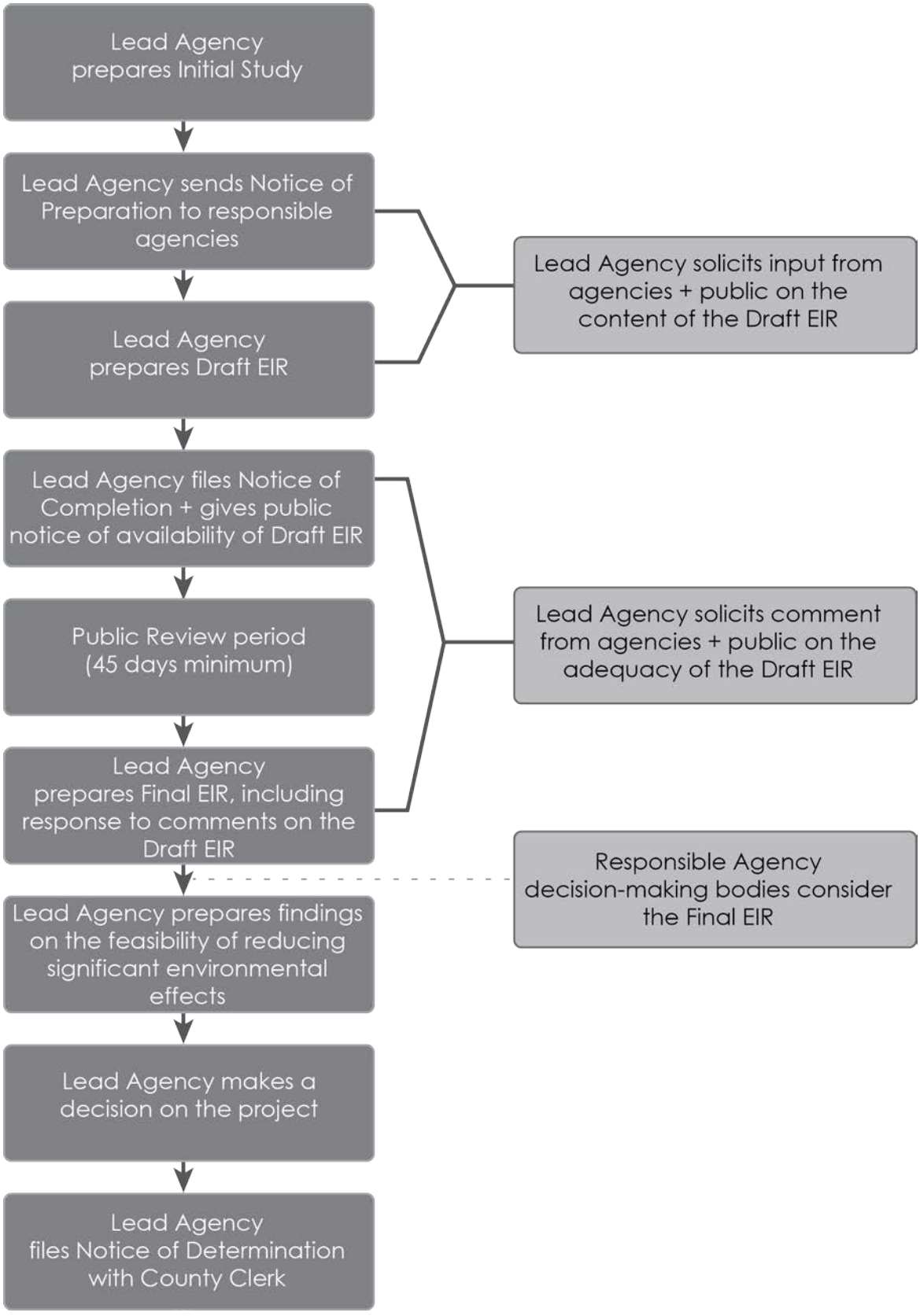
The environmental impact review process, as required under CEQA, is summarized below and illustrated in Figure 1-1. The steps are presented in sequential order.

1. **Notice of Preparation (NOP) and Initial Study**. After deciding that an EIR is required, the lead agency (City of Palo Alto) must file a NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP may be accompanied by an Initial Study that identifies the issue areas for which the project could create significant environmental impacts.
2. **Draft EIR Prepared.** The Draft EIR must contain: a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes.
3. **Notice of Completion (NOC)/Notice of Availability of a Draft EIR.** The lead agency must file a NOC with the State Clearinghouse when it completes a Draft EIR and prepare a Public Notice of Availability of a Draft EIR. The lead agency must place the NOC in the County Clerk's office for 30 days (Public Resources Code Section 21092) and send a copy of the NOC to anyone requesting it (*CEQA Guidelines* Section 15087). Additionally, public notice of Draft EIR availability must be

given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a Draft EIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the State Clearinghouse approves a shorter period (Public Resources Code 21091).

4. **Final EIR.** A Final EIR must include: a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.
5. **Certification of Final EIR.** Prior to making a decision on a proposed project, the lead agency must certify that: a) the Final EIR has been completed in compliance with CEQA; b) the Final EIR was presented to the decision-making body of the lead agency; and c) the decision making body reviewed and considered the information in the Final EIR prior to approving a project (*CEQA Guidelines* Section 15090).
6. **Lead Agency Project Decision.** The lead agency may a) disapprove the project because of its significant environmental effects; b) require changes to the project to reduce or avoid significant environmental effects; or c) approve the project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* Sections 15042 and 15043).
7. **Findings/Statement of Overriding Considerations**. For each significant impact of the project identified in the EIR, the lead agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
8. **Mitigation Monitoring Reporting Program.** When the lead agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
9. **Notice of Determination (NOD).** The lead agency must file a NOD after deciding to approve a project for which an EIR is prepared (*CEQA Guidelines* Section 15094). A local agency must file the NOD with the County Clerk. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

Figure 1-1 Environmental Review Process



2 Project Description

This section describes the proposed project, including the project sponsors, the project site and surrounding land uses, major project characteristics, project objectives, and discretionary actions needed for approval.

2.1 Project Applicant's Name and Address

Ted O'Hanlon on behalf of 788 SA, LLC
2625 Middlefield Road, #101
Palo Alto, CA 94306

2.2 Lead Agency Contact Person

Sheldon S. Ah Sing, AICP, Project Planner
City of Palo Alto
250 Hamilton Avenue
Palo Alto, California 94301
(408) 340-5642 ext. 109

2.3 Project Location

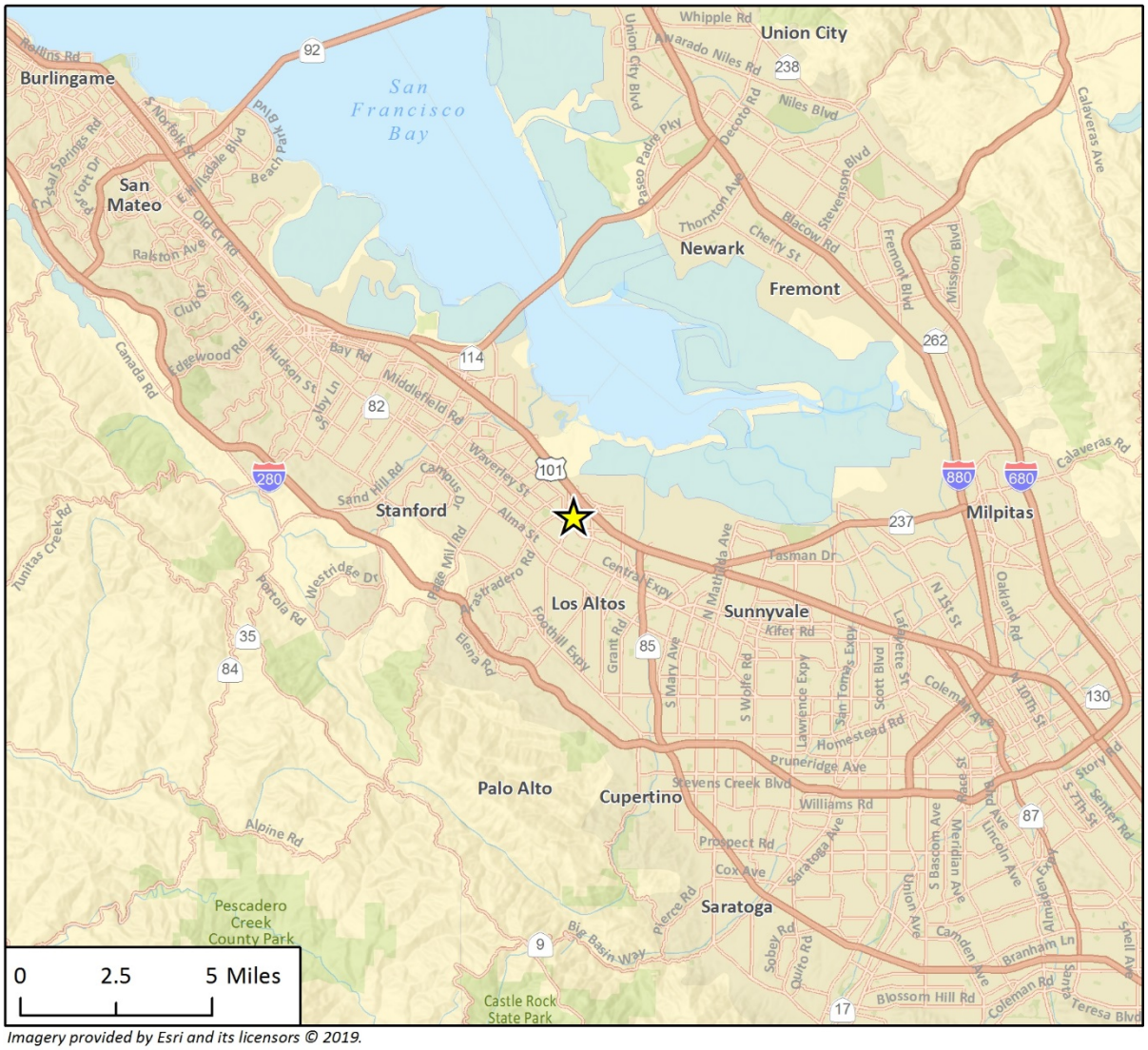
The proposed Housing Incentive Program (HIP) expansion area ("program area") includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road in the City of Palo Alto. The eastern boundary of the program area is the boundary between the City of Palo Alto and the City of Mountain View. With the exception of one parcel, 705 San Antonio Road, all of the parcels in the program area are located on the east side of San Antonio Road. The parcels encompass 9.64 acres (420,031 square feet). Table 2-1 provides the address, lot area, Assessor's Parcel Number, and existing use for each parcel within the area. Figure 2-1 shows the regional location of the program area and Figure 2-2 shows an aerial view of the program area and the immediate surroundings.

As described in Section 9, Description of the Project, the proposed project also involves a new development on two of the parcels within the program area. Those parcels are located on the northeast corner of the intersection of San Antonio Road and Leghorn Street at 788, 790, and 796 San Antonio Road (the "788 San Antonio Road project site" or "project site"). Figure 2-2 shows an aerial view of the project site in relation to the program area.

Table 2-1 Parcels within the Program Area

Address	APN	Lot Size (square feet)	Existing Use
840 San Antonio	147-03-064	23,065	Service Station
910 E. Charleston	147-03-065	22,270	Fast food drive-thru
824 San Antonio	147-03-040	19,905	Car Rental
816 San Antonio	147-03-039	20,021	Car Rental
808 - 814 San Antonio	147-03-043	19,787	Day Spa
800 San Antonio	147-03-038	18,870	Tutoring
796 San Antonio	147-03-042	21,223	Martial Arts
788 – 790 San Antonio	147-03-041	22,718	Contractor
780 San Antonio	147-05-092	20,293	Oil Change
762 San Antonio	147-05-102	39,880	Truck sales
760 San Antonio	147-05-091	29,082	Office equipment repair
744 - 750 San Antonio	147-05-089, 147-05-088	83,441	Hotel
720 San Antonio	147-05-087	20,000	Light manufacturing
708 - 710 San Antonio	147-05-090	10,422	Automobile repair
705 San Antonio	127-15-045	25,493	Service Station
4201 Middlefield	147-05-086	2,720	Oil Change
4227 Middlefield	147-05-068	10,845	Office Supply
4233 Middlefield	147-05-069	9,996	Bicycle Shop

Figure 2-1 Regional Location



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Project Location

N

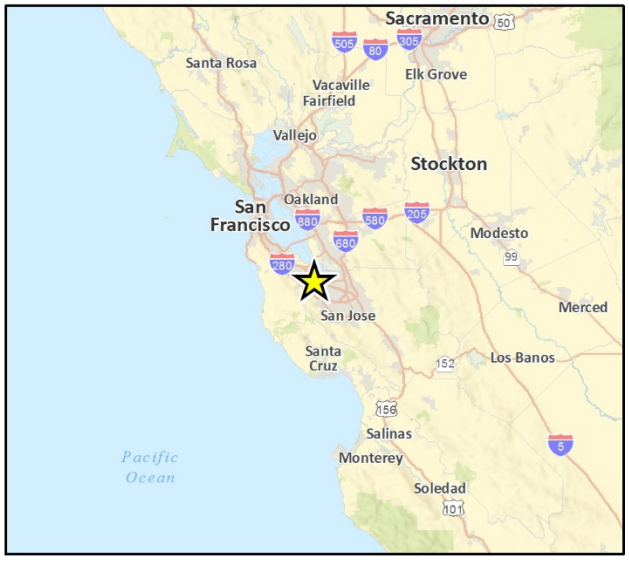


Figure 2-2 Project Location

Imagery provided by Esri and its licensors © 2020.

Fig 2 Project Location

2.4 Existing Site Characteristics

2.4.1 Current Land Use Designation and Zoning

All parcels within the program area have a 2030 Comprehensive Plan designation of Service Commercial**.** The City of Palo Alto's Comprehensive Plan 2030 (Comprehensive Plan) Land Use and Community Design Element defines the Service Commercial category as follows:

> facilities providing citywide and regional services and relying on customers arriving by car… Typical uses include auto services and dealerships, motels, lumberyards, appliance stores and restaurants, including fast service types. In almost all cases, these uses require good automobile and service access so that customers can safely load and unload without impeding traffic. In some locations, residential and mixed-use projects may be appropriate in this land use category. Examples of Service Commercial areas in Palo Alto include San Antonio Road, El Camino Real and Embarcadero Road northeast of the Bayshore Freeway. Consistent with the Comprehensive Plan's encouragement of housing near transit centers, higher density multi-family housing may be allowed in specific locations (City of Palo Alto 2017a).

All parcels within the program area are zoned Service Commercial (CS). The Palo Alto Municipal Code (PAMC) defines the CS district as follows:

> intended to create and maintain areas accommodating citywide and regional services that may be inappropriate in neighborhood or pedestrian-oriented shopping areas, and which generally require automotive access for customer convenience, servicing of vehicles or equipment, loading or unloading, or parking of commercial service vehicles (PAMC Section 18.16.010).

In addition, parcels at 762 San Antonio Road, 708 San Antonio Road 4227 Middlefield Road, and 4233 Middlefield Road are designated Service Commercial with the Automobile Dealership combining district (CS(AD)). The PAMC defines the AD combining district as follows:

> intended to modify the regulations of the service commercial (CS) and general manufacturing (GM or GM(B)) districts to create and maintain areas accommodating automobile dealerships primarily engaged in new and used automobile sales and service on a citywide and regional basis. Such uses generally require special parking, access, and outdoor display provisions for customer convenience, servicing of vehicles or equipment, loading or unloading, or parking of commercial service vehicles (PAMC Section 18.30(F).010).

2.4.2 Surrounding Land Uses

The program area is in a neighborhood characterized by a mix of uses, including residential, retail, office, and commercial. A residential development with several three-story multi-unit buildings is west of the area, across San Antonio Road, near the intersection with Leghorn Street. Other surrounding uses north, west, east, and immediately south of the program area are primarily low-density commercial uses, including another service station, automobile repair and service businesses, office buildings, and print shops. Multi-family residential buildings and schools are located further south of the program area.

2.4.3 Existing Program Area and Project Site Characteristics

The program area includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road. With the exception of one parcel, 705 San Antonio Road, all of the parcels are located on the east side of San Antonio Road, and their eastern edges mark the boundary between the City of Palo Alto and the City of Mountain View. As Table 2-1 above indicates, all the parcels within the program area are currently developed with commercial uses, including many automobile-oriented businesses. The program area includes three service stations, two car rental and sales businesses, three car repair and oil change businesses. The other parcels within the area house other commercial and service uses, including a hotel, a fast food restaurant, and a light manufacturing business. The existing buildings within the program area are one- to two-stories, with parking lots, drive aisles, and some perimeter landscaping surrounding them. Figure 2-3 and Figure 2-4 show photographs of the program area.

The 788 San Antonio Road project site is located towards the center of the program area, on the northeast corner of San Antonio Road and Leghorn Street. The project site is currently developed with two structures and surface parking lots. A concrete and construction company uses one existing structure, and the other is used as a storage company and martial arts and fitness studio. The site is rhombus shaped, is generally flat, and is almost entirely paved, with limited landscaping along its perimeter. There are three trees on the site, one at its southeastern corner and two near the southwest corner, as well as 10 street trees adjacent along San Antonio Road and Leghorn Street. Figure 2-4, Figure 2-5 and Figure 2-6 show photographs of the project site.

2.5 Project Description

2.5.1 Proposed Zoning Code Amendment to Expand the Housing Incentive Program

The project would involve an amendment to Section 18 of the Palo Alto Municipal Code (PAMC) to allow the application of the Housing Inventive Program (HIP) to the 18 parcels within the program area. This would allow for increased density of multi-family residential development along San Antonio Road corridor.

The proposed text amendment to the Zoning Ordinance, outlined in Title 18 of the Palo Alto Municipal Code, would result in the following changes to the zoning regulations that apply to these properties:

- Allow a waiver for housing projects to exceed maximum Floor Area Ratio (FAR), up to 2.0
- Allow a waiver to exceed maximum site coverage
- Allow rooftop gardens to count towards required open space
- Exclude retail area from parking requirements
- Exempt certain area in subterranean garages from counting towards FAR
- Allow a waiver to reduce requirements related to preservation of existing retail space to allow for housing projects

Figure 2-3 Photographs of Program Area — Photos 1 and 2

Photo 1: View of 840 San Antonio Road, taken from San Antonio Road looking northeast

Photo 2: View of 824 and 816 San Antonio Road, taken from San Antonio Road looking southeast

Figure 2-4 Photographs of Program Area — Photos 3 and 4

Photo 3: View of 816 San Antonio Road, taken from San Antonio Road looking east.

Photo 4: View of 728 and 720 San Antonio Road, taken from San Antonio Road looking southeast.

Figure 2-5 Photographs of Project Site – Photos 5 and 6

Photo 5: View of the 796 San Antonio Road, taken from San Antonio Road looking northeast.

Photo 6: View of 796 and 788 San Antonio Road, taken from San Antonio Road looking southeast.

Figure 2-6 Project Site Photographs — Photos 7 and 8

Photo 7: Intersection of San Antonio Road and Leghorn Street with The Greenhouse apartments in the background, looking across San Antonio Road to the west.

Photo 8: The eastern portion of 788 San Antonio Road, looking south.

Table 2- 2 identifies the properties that would be affected by the proposed text amendment and, based on their lot size, provides the maximum number of dwelling units that would be allowed under the HIP program. As shown in the table, the proposed HIP expansion could add up to an estimated 818 residential units in the program area.

Table 2- 2 Maximum Density with Proposed Zoning Code Amendment

Address	Lot Size (square feet)	Maximum Floor Area (square feet)	Maximum Number of Units
840 San Antonio	23,065	46,130	56.05
910 E. Charleston	22,270	44,540	54.12
824 San Antonio	19,905	39,810	48.37
816 San Antonio	20,021	400,42	48.65
808 - 814 San Antonio	19,787	39,574	48.09
800 San Antonio	18,870	37,740	45.86
796 San Antonio	21,223	42,446	51.57
788 – 790 San Antonio	22,718	45,436	55.21
780 San Antonio	20,293	40,586	49.31
762 San Antonio	39,880	79,760	96.91
760 San Antonio	29,082	58,164	70.67
744 - 750 San Antonio	83,441	166,882	0.00
720 San Antonio	20,000	40,000	48.60
708 - 710 San Antonio	10,422	20,844	25.33
705 San Antonio	25,493	50,986	61.95
4201 Middlefield	2,720	5,440	6.61
4227 Middlefield	10,845	21,690	26.35
4233 Middlefield	9,996	19,992	24.29
		Total Number of Units Allowed:	818

2.5.2 Proposed Development at 788 San Antonio Road

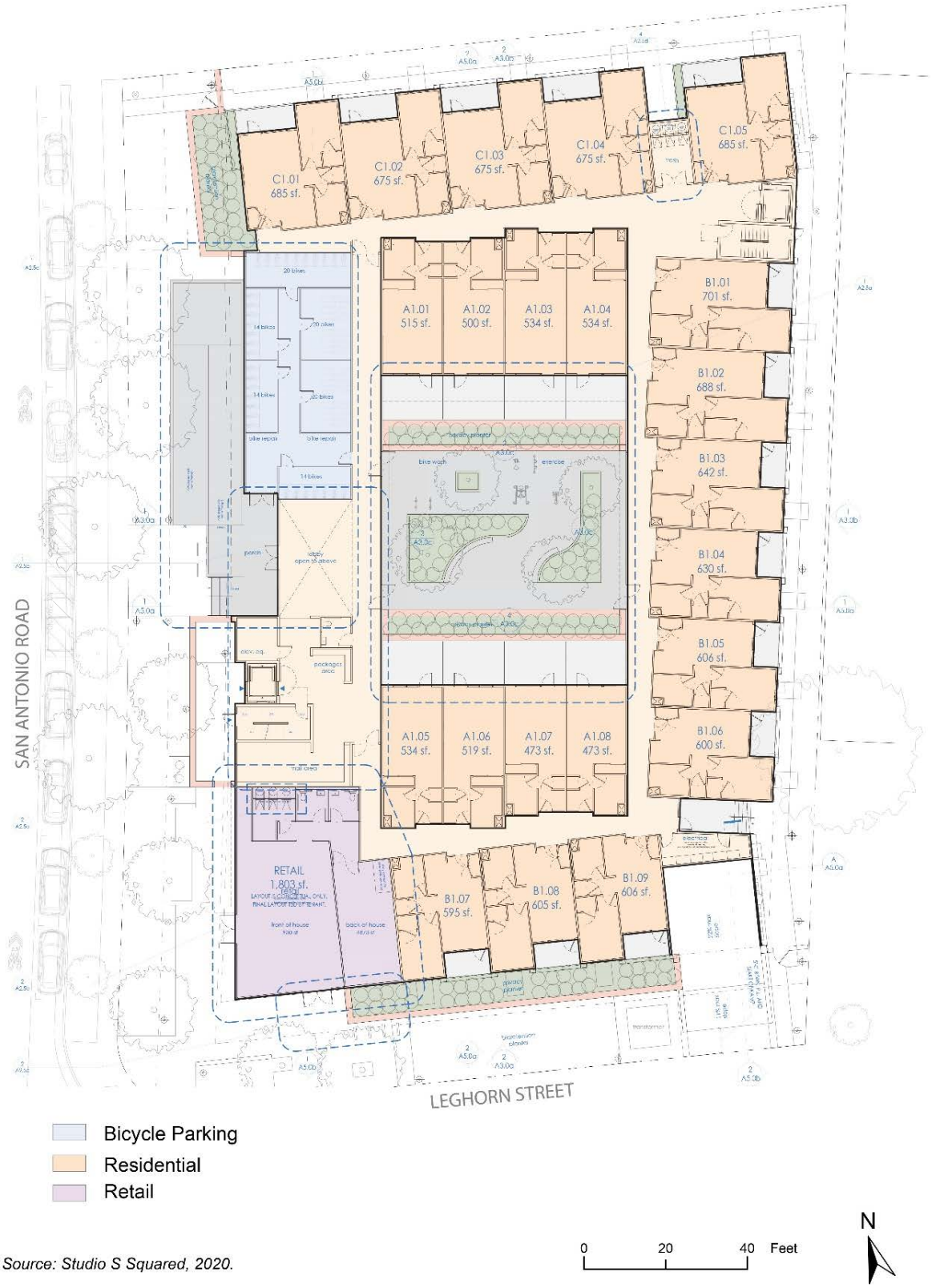
In addition to the proposed amendment to the PAMC, the project would also involve development of two of the 18 parcels within the program area, at 788, 790, and 796 San Antonio Road. This development would involve the demolition of the two existing on-site one-story commercial structures and the construction of a four-story mixed-use structure with one retail tenant space, 102 dwelling units, and a two-level subterranean parking garage. Each floor would be arranged according to the same general footprint, with an empty rectangular space in the center to allow solar access to a proposed central courtyard at the first floor. Uses on the first floor would include a 1,803 square-foot retail space at the southwestern corner of the site and common areas along San Antonio Road, including a main entrance and lobby, mail room, bicycle parking rooms, and a bicycle repair room, and dwelling units arranged around the north, east, and south portions of the site. The floors above the first would include residential units arranged around the central courtyard space. Most units would include attached private outdoor balconies with views either towards the central courtyard or out towards the perimeters of the site. A communal landscaped roof garden would be

located at the fourth floor at the western portion of the building along San Antonio Road. Table 2- 3 provides a summary of the proposed development. Figure 2-7 shows the proposed site plan, and Figure 2-8 shows the proposed project elevations.

Table 2- 3 Proposed 788 San Antonio Road Development Summary

Feature	Details
Lot Area	
Square feet	43,414
Acres	0.997
Proposed Building Uses	
Residential	83,466 square feet (sf)
Retail	1,803 sf
Garage Floor Area	1,346 sf
Total gross square feet	**86,615 sf**
Proposed Dwelling Units	
Studio	**32**
One Bedroom	**67**
Two Bedroom	**3**
Total Units	**102**
Proposed Parking	
Retail Parking	20
Residential Parking	106
Total Stalls	**126**
Total Bicycle Parking Spaces	**114 (102 long-term and 12 short-term)**
Proposed Building Dimensions	
Parapet Height	49 feet, 5 inches
Total Lot Coverage	29,467 sf (67 percent)
Open Space Calculations	
Private Open Space (private unit balconies)	8,788 sf
Common Open Space (podium courtyard + roof top)	6,559 sf
Proposed Setbacks	
Front (Leghorn Street)	25 feet, 3 inches
Side – Right (east)	10 feet, 3 inches
Side – Left (west) (San Antonio Road)	26 feet, 1 inch
Rear	10 feet, 1 inches

Figure 2-7 Proposed 788 San Antonio Road Development Site Plan



Source: Studio S Squared, 2020.

Figure 2-8 Rendering of Proposed 788 San Antonio Road Development Elevation

Source: Studio S Squared, 2020.

0 15 30 Feet

2.5.3 Circulation, Access, and Parking

Access to the proposed underground garage would be available from Leghorn Street. The project would include 126 parking spaces, including 20 spaces designated for the retail space, within two garage levels.

Pedestrian and bicycle access to the building would be provided via a landscaped entrance adjacent to San Antonio Road. The project would include 116 bicycle parking spaces, with 102 long-term spaces located in two storage areas on the first floor and 12 short-term spaces located at-grade.

2.5.4 Landscaping and Open Space

According to the Arborist Report prepared for the project (Kielty 2020), there are sixteen existing trees at or near the project site. Three trees are on the project site, three are on neighboring properties, and ten are street trees. On-site trees include two Chinese Pistache and one Raywood Ash tree. Street trees include Live Oak trees, two American Elm trees, one Modesto Ash, one Flowering Ash, and two Chinese Pistache trees. In addition, one Weeping Blue Atlas Cedar, one Raywood Ash, and one Laurel Fig tree are located on neighboring properties, within approximately 10 feet of the subject site property lines. Six trees within and near the site would be removed during project construction, including three regulated street trees: a Modesto Ash tree near the southeast corner of the site, a Flowering Ash, and a Chinese Pistache near the southwestern corner of the site.

Proposed landscaping would include new plantings throughout the open spaces, including the central courtyard at the first floor, at the setbacks along San Antonio Road and Leghorn Street, and at the fourth-floor roof garden.

2.5.5 Construction

To complete the construction of the project, including the subterranean parking garage, grading would take place over most of the site, and approximately 20,170 cubic yards of soil would be exported. Excavation for the subterranean parking garage would reach a maximum depth of approximately 20 feet and six inches. Construction is expected to occur over 22 months.

2.5.6 Utilities

The City of Palo Alto Utilities department (CPAU) provides electric, natural gas, refuse, recycled water, storm drain, and wastewater collection, treatment, and disposal. Water would be provided by the San Francisco Public Utilities Commission (SFPUC). Police and fire protection services would be provided by the City of Palo Alto.

2.5.7 Palo Alto Green Building Checklist

In addition to California Building Code (CBC) requirements, the City of Palo Alto has adopted more stringent green building regulations. The Palo Alto Green Building Ordinance (Ord. 5393, 2017) requires applicants to incorporate sustainable design, construction, and operational requirements into most single-family residential, multi-family residential, and non-residential projects. For residential development, the City has adopted California Green Building Standards Code (CALGreen) Tier 1 for additions and renovations over 1,000 square feet and CALGreen for Tier 2 for new construction (City of Palo Alto 2020a; City of Palo Alto 2020c). To achieve Tier 2 status, a project must comply with the requirements identified in CALGreen Appendix A4, Division A4.601.5 and be 10 percent more energy efficient than the base CALGreen code requirements. In accordance with

the City's Green Building Ordinance, the proposed project would satisfy requirements for CALGreen Tier 2.

2.6 Project Objectives

Housing Incentive Program Expansion Objectives

The following project objectives are specific to the proposed expansion of the Housing Incentive Program (HIP).

1. Update the Palo Alto Municipal Code to remove barriers and disincentives to housing development at higher densities where appropriate near transit, jobs, and services.
2. Update the Palo Alto Municipal Code to encourage production of housing that is affordable to a range of income levels.
3. Update the Palo Alto Municipal Code to allow housing production to meet the City of Palo Alto's Regional Housing Needs Assessment (RHNA).

788 San Antonio Road Mixed-Use Project Objectives

The following project objectives are specific to the proposed 788 San Antonio mixed-use development.

1. Develop a high-density residential project to help the City make substantial progress toward its goal of generating 300 housing units per year and improve the jobs housing balance.
2. Develop below market rate housing units to help the City satisfy its regional housing needs allocation of affordable units.
3. Provide at least 1,800 square feet of on-site resident-serving retail.
4. Apply the Housing Incentive Program (HIP) to the property to allow more housing to be developed on this housing opportunity site, as an alternative to the State Density Bonus Law.
5. Provide bicycle parking on the ground level adjacent to the main lobby for ease of access and to encourage the use of alternative forms of transportation to nearby employment and transit.

2.7 Required Approvals

The proposed development of the 788 San Antonio Road project would require a recommendation from the Planning and Transportation Commission and City Council approval of a Zoning Code Text Amendment to apply the HIP expansion to program area, including the project site. The development of the 788 San Antonio site also requires approval of a Major Architectural Review application, a variance to a special setback, a partial waiver of required retail space preservation, and a one-lot subdivision for condominium purposes. These applications will also be subject to City Council approval.

No approvals from other public agencies would be required on either the HIP program expansion or proposed development.

3 Environmental Setting

This section provides a general overview of the environmental setting for the proposed project. More detailed descriptions of the environmental setting for each environmental issue area can be found in Section 4, *Environmental Impact Analysis*.

3.1 Regional Setting

The project is in the City of Palo Alto, which is located in the southeastern portion of the San Francisco Peninsula in Santa Clara County. Palo Alto covers an area of 25.8 square miles and is bordered by the cities of Menlo Park, East Palo Alto, Mountain View, and Los Altos, as well as the Town of Los Altos Hills, the unincorporated community of Portola Valley, and Stanford University (City of Palo Alto 2017a). The program area is located along San Antonio Road, which is a major commercial corridor and arterial roadway that runs along the eastern border between Palo Alto and Mountain View and connects the city to Los Altos to the southeast. Figure 2-2 in Section 2, *Project Description*, shows the regional location of the project.

A grid system of east-west and north-south roadways, including arterials, collectors, and local streets, provide vehicular access throughout the City. The major roadways include Bayshore Freeway (US 101), Middlefield Road, El Camino Real (SR-82), Junipero Sierra Boulevard, and Junipero Sierra Freeway (I-280). Regional access to Palo Alto is provided by US 101, I-280, and SR 82/El Camino Real. US 101 is located over two miles northeast of the program area and I-280 is located over two miles southwest of the program area. The city is also served by the Caltrain passenger rail network.

The Mediterranean climate of the region and the coastal influence produce moderate to cool temperatures year-round, with rainfall concentrated in the winter months. Although air quality in the area has steadily improved in recent years, the entirety of Santa Clara County remains an Environmental Protection Agency (EPA) nonattainment area for ozone (urban smog). The City of Palo Alto is located approximately sixteen miles inland from the coastline of the Pacific Ocean.

3.2 Project Setting

Figure 2-2 in Section 2, *Project Description,* shows the project location. The program area is in a neighborhood characterized by a mix of uses, including residential, retail, office, and commercial. A residential development with several three-story multi-unit buildings is west of the area, across San Antonio Road, near the intersection with Leghorn Street. Other surrounding uses north, west, east, and immediately south of the program area are primarily low-density commercial uses, including another service station, automobile repair and service businesses, office buildings, and print shops. Multi-family residential buildings and schools are located further south of the program area.

The program area includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road. With the exception of one parcel, 705 San Antonio Road, all of the parcels are located on the east side of San Antonio Road, and their eastern edges mark the boundary between the city of Palo Alto and the city of Mountain View. All the parcels within the program area are currently developed with commercial uses, including many automobile-oriented businesses. The program area includes three service stations, two car rental and sales businesses, three car repair

and oil change businesses. The other parcels within the area house other commercial and service uses, including a hotel, a fast food restaurant, and a light manufacturing business. The existing buildings within the program area are one- to two-stories, with parking lots, drive aisles, and some perimeter landscaping.

The 788 San Antonio Road project site is located towards the center of the program area on the northeast corner of San Antonio Road and Leghorn Street, on two parcels totaling 0.98-acre (43,414-square-feet). The project site is bordered by a one-story commercial building with a learning academy and tutoring services to the north, a one-story vacant commercial building to the east, San Antonio Road to the west, and Leghorn Street to the south. Across San Antonio road to the west is a one-story office building and across Leghorn Street to the south are one-story buildings and parking lots for auto service truck sales and rentals. Commercial development is located further north and south along San Antonio Road, including auto service and rental companies and restaurants. Commercial development also continues east along Leghorn Street, including auto service and storage companies. A residential development with several three-story multi-unit buildings is located southwest of the project site, across San Antonio Road.

The project site is currently developed with two structures and surface parking lots. One existing structure is used by a concrete and construction company, and the other is used as a storage company and martial arts and fitness studio. The site is rhombus shaped, is generally flat, and is almost entirely paved, with limited landscaping along its perimeter. There are three trees on the project site, one at its southeastern corner and two near the southwest corner, and there are 12 street trees adjacent along San Antonio Road and Leghorn Street.

All parcels within the program area are zoned Service Commercial (CS), as defined by the City's Zoning Ordinance and have a 2030 Comprehensive Plan land use designation of Service Commercial. In addition, parcels at 762 San Antonio Road, 708 San Antonio Road 4227 Middlefield Road, and 4233 Middlefield Road are designated Service Commercial with the Automobile Dealership combining district (CS(AD)). Uses in the Service Commercial Zone are "intended to create and maintain areas accommodating citywide and regional services that may be inappropriate in neighborhood or pedestrian-oriented shopping areas, and which generally require automotive access for customer convenience, servicing of vehicles or equipment, loading or unloading, or parking of commercial service vehicles" (PAMC Section 18.16.010). Uses in the Automobile Dealership combining district are "intended to modify the regulations of the service commercial (CS) and general manufacturing (GM or GM(B)) districts to create and maintain areas accommodating automobile dealerships primarily engaged in new and used automobile sales and service on a citywide and regional basis" (PAMC Section 18.30(F).010).

3.3 Cumulative Development

In addition to the specific impacts of individual projects, CEQA requires EIRs to consider potential cumulative impacts of the proposed project. CEQA defines "cumulative impacts" as two or more individual impacts that, when considered together, are substantial or will compound other environmental impacts. Cumulative impacts are the combined changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be less than significant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

CEQA requires cumulative impact analysis in EIRs to consider either a list of planned and pending projects that may contribute to cumulative effects or a forecast of future development potential. Currently planned and pending projects within approximately one mile of the program area in Palo Alto and the City of Mountain View are listed in Table 3-1. These projects are considered in the cumulative analyses in Section 4, *Environmental Impact Analysis*.

Table 3-1 Cumulative Projects List

Project Location	Land Use	Size	Status	Distance to HIP Program Area
City of Palo Alto[1]				
744-750 San Antonio Road	Hotel	165,405 sf (294 rooms)	Under construction	In program area
Cubberley Community Center (4000 Middlefield Road), Greendale School (4120 Middlefield Road), 525 San Antonio	Community Services and Residential	524,500 sf of community service space, 112 units	Under review	0.1 mile
City of Mountain View[2]				
901-987 N. Rengstorff Avenue	Residential	91 units	Under review	0.5 mile
2019 Leghorn Street	Office	12,050 sf	Approved	0.5 mile
410-414 Sierra Vista Avenue	Residential	14 units	Approved	0.9 miles
2044 and 2054 Montecito Avenue	Residential	52 units	Under construction	0.8 miles
858 Sierra Vista Avenue	Residential	4 units	Under construction	0.7 miles
333 North Rengstorff Avenue	Residential	31 units	Under construction	0.7 miles
1998-2024 Montecito Avenue	Residential	17 units	Under construction	0.9 miles
315 and 319 Sierra Vista Avenue	Residential	15 units	Under construction	1 mile
2600 Marine Way	Office	364,000 sf	Approved	0.5 mile

[1] Source: City of Palo Alto 2020c. Cumulative project details were sourced from buildingeye, a citizen-facing mapping interface provided by the City of Palo Alto and available online at https://paloalto.buildingeye.com/planning. Excludes single-family homes.

[2] Source: City of Mountain View 2020. City of Mountain View planned and pending projects available online: https://www.mountainview.gov/civicax/filebank/blobdload.aspx?BlobID=31911

sf = square feet

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4 Environmental Impact Analysis

This section discusses the possible environmental effects of the proposed HIP expansion and 788 San Antonio Road Mixed-Use Project for the specific issue areas that were identified through the scoping process as having the potential to experience significant effects. "Significant effect" is defined by the *CEQA Guidelines* §15382 as:

> a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant.

The assessment of each issue area begins with a discussion of the environmental setting related to the issue, which is followed by the impact analysis. In the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the City and other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text with the discussion of the effect and its significance. Each bolded impact statement also contains a statement of the significance determination for the environmental impact as follows:

> **Significant and Unavoidable**. An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per §15093 of the CEQA Guidelines.
>
> **Less than Significant with Mitigation Incorporated**. An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under §15091 of the CEQA Guidelines.
>
> **Less than Significant**. An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
>
> **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a list of mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measure(s). In cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed and evaluated as a secondary impact. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other planned and pending developments in the area listed in Section 3, *Environmental Setting*. The Executive Summary of this EIR summarizes all impacts and mitigation measures that apply to the proposed project.

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4.1 Air Quality

This section analyzes both temporary air quality impacts relating to construction activity and long-term air quality impacts associated with the proposed project. The analysis herein is based partially on the traffic and trip generation modeling provided by TJKM (2020a; 2020b) and included in Appendix H and Appendix I. Greenhouse gas emissions and global climate change impacts are discussed in Section 4.4, *Greenhouse Gas Emissions*.

4.1.1 Setting

a. Regional Climate and Meteorology

The program area is located in the city of Palo Alto in the northwest corner of Santa Clara County, which is a subregion of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County.

Typical of the San Francisco Bay Area, Palo Alto has a Mediterranean climate with cool, wet winters and warm, dry summers. Typically, in the warmer months, as the sun goes down, the fog bank flows over the foothills to the west and covers the night sky, thus creating a blanket that helps trap the summer warmth absorbed during the day. Even so, it is rare for the overnight low temperature to exceed 60 °F. In January, average temperatures range from 39 °F to 57°F. In July, average temperatures range from 55 °F to 78 °F (Western Regional Climate Center 2020). Due to the Santa Cruz Mountains to the west, there is a "rain shadow" in Palo Alto, resulting in an average annual rainfall of 15.3 inches. Measurable rainfall occurs on an average of 57 days annually, with most rainfall occurring from November to March.

The prevailing wind in most of Palo Alto is primarily from a northerly direction, especially during the winter and summer. In spring and fall, winds become somewhat variable with more of a northwesterly direction. Bay breezes push cool air onshore during the daytime and draw air from the land offshore at night. Wind speeds are moderate in this subregion, with annual average wind speeds during the spring and summer at about nine miles per hour (mph), while during the winter they average seven mph.

b. Air Pollutants of Primary Concern

Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere. Primary criteria pollutants include carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_X), fine particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Secondary criteria pollutants are created by atmospheric chemical and photochemical reactions; ROGs together with NO_X form the building blocks for the creation of photochemical (secondary) pollutants. Secondary pollutants include oxidants, ozone (O_3) and sulfate and nitrate particulates (smog). The characteristics, sources and effects of critical air contaminants are described below.

Ozone

O_3 is produced by a photochemical reaction (triggered by sunlight) between NO_X and ROG. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because O_3 requires sunlight to form, it

mostly occurs in concentrations considered serious between the months of April and October. O_3 is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations only near the source. The major source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. CO's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 ppm may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

Suspended Particulates

PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes, as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Toxic Air Contaminants

The Air Toxic "Hot Spots" Information and Assessment Act of 1987 (Assembly Bill [AB] 2588) seeks to identify and evaluate risk from air toxics sources but does not directly regulate air toxics emissions. A toxic air contaminant (TAC) is a substance CARB has determined to have the potential to cause serious health effects. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs tend to be localized and are found in relatively low

concentrations in ambient air; however, exposure to low concentrations over long periods can result in increased risk of cancer and/or adverse health effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Because some communities in the Bay Area experience relatively high exposure to TACs compared with other communities, the Bay Area Air Quality Management District (BAAQMD) established the Community Air Risk Evaluation program in 2004 to identify impacted communities. The City of Palo Alto is not considered an impacted community based on the Bay Area TAC inventory developed in 2005, demographic, and health data.

While CO is not defined as a TAC, it can cause acute health effects such as impairment of the central nervous system and cardiovascular system (California Office of Environmental Health Hazard Assessment 2019). The SFBAAB is an attainment area for CO, although CO "hotspots" can form if there is a high level of congested traffic, poor atmospheric ventilation, and many vehicles are cold-starting.

In 2019, the highest maximum one-hour concentration of CO at the Redwood City Monitoring Station (the one closest to Palo Alto) was approximately 20 ppm, which is equal to the state standard, and 15 ppm below the national standard. The average highest one-hour concentration of CO in 2019 was 7.08 ppm, approximately 13 ppm below the state standard and 28 ppm below the national standard (California Air Resources Board [CARB] 2020).

c. Air Pollution Regulation

The federal and state governments have authority under the federal and state Clean Air Acts to regulate emissions of airborne pollutants and have established ambient air quality standards (AAQS) for the protection of public health. The U.S. Environmental Protection Agency (U.S. EPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the state equivalent in California. Federal and state standards have been established for six criteria pollutants, including O_3, CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and Pb.

Air quality monitoring stations measure pollutant ground-level concentrations (typically, ten feet above ground level). Depending on whether the standards are met or exceeded, the local air basin is classified as in "attainment" or "non-attainment." Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. Table 4.1-1 lists the current federal and state standards for each of these pollutants as well as the attainment status of the SFBAAB. California air quality standards are identical to or stricter than federal standards for all criteria pollutants.

Local control in air quality management is provided by CARB through county-level or regional (multi-county) Air Pollution Control Districts (APCDs). CARB establishes statewide air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide. Palo Alto is located in the SFBAAB, which is under the jurisdiction of the BAAQMD.

Table 4.1-1 Federal and State Ambient Air Quality Standards

		California Standards		National Standards	
Pollutant	Averaging Time	Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm	N	0.070 ppm	N
	1 Hour	0.09 ppm	N		
Carbon Monoxide	8 Hour	9.0 ppm	A	9 ppm	A
	1 Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1 Hour	0.18 ppm	A	0.100 ppm	U
	Annual Arithmetic Mean	0.030 ppm		0.053 ppm	A
Sulfur Dioxide	24 Hour	0.04 ppm	A	0.14 ppm	A
	1 Hour	0.25 ppm	A	0.075 ppm	A
	Annual Arithmetic Mean			0.030 ppm	A
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N		
	24 Hour	50 µg/m^3	N	150 µg/m^3	U
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N	12 µg/m^3	U/A
	24 Hour			35 µg/m^3	N
Sulfates	24 Hour	25 µg/m^3	A		
Lead	Calendar Quarter			1.5 µg/m^3	A
	Rolling 3 Month Average			0.15 µg/m^3	
	30 Day Average	1.5 µg/m^3)			A
Hydrogen Sulfide	1 Hour	0.03 ppm	U		
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm	No information available		
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)		U		

A=Attainment N=Nonattainment U=Unclassified; mg/m^3=milligrams per cubic meter ppm=parts per million µg/m^3=micrograms per cubic meter

Source: BAAQMD 2017a, http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status

d. Current Air Quality

CARB and the U.S. EPA established ambient air quality standards for major pollutants, including O_3, CO, NO_2, SO_2, Pb, and PM_{10} and $PM_{2.5}$. Standards have been set at levels intended to be protective of public health. California standards are more restrictive than federal standards for each of these pollutants except for lead and the eight-hour average for CO. The local APCDs are required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards.

As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

The Redwood City Monitoring Station is the closest BAAQMD-operated monitoring station that records the major pollutants listed above and is approximately seven miles northwest of the program area. Table 4.1-2 summarizes the representative annual air quality data for the program area from 2016 through 2018 at the Redwood City Monitoring Station for all criteria pollutants, except for PM_{10}, which was taken from the San Jose – Jackson Street Station as it was next closest

monitoring station to the program area. No information for CO concentrations was available at any monitoring stations in Santa Clara County.

Table 4.1-2 Ambient Air Quality Data

Pollutant	2016	2017	2018
Ozone (ppm), Worst 1-Hour	0.075	0.115	0.067
Number of days of State exceedances (>0.09 ppm)	0	2	0
Ozone (ppm), 8-Hour Average	0.060	0.086	0.049
Number of days of State exceedances (>0.07 ppm)	0	2	0
Number of days of Federal exceedances (>0.07 ppm)	0	2	0
Carbon Monoxide (ppm), Highest 8-Hour Average	*	*	*
Number of days of above State or Federal standard (>9.0 ppm)	*	*	*
Particulate Matter <10 microns, $\mu g/m^3$, Worst 24 Hours	40.0	69.4	155.8
Number of days above State standard (>50 $\mu g/m^3$)	0	6	4
Number of days above Federal standard (>150 $\mu g/m^3$)	0	0	1
Particulate Matter <2.5 microns, $\mu g/m^3$, Worst 24 Hours	19.5	60.8	120.9
Number of days above Federal standard (>35 $\mu g/m^3$)	0	6	13

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

* There was insufficient (or no) data available to determine the value.

Redwood City Monitoring Station was used for all pollutants.

Source: CARB 2020. Top 4 Summary, https://www.arb.ca.gov/adam/topfour/topfour1.php

As shown in Table 4.1-2, one-hour ozone concentrations exceeded State standards twice in 2017 and eight-hour ozone concentrations exceeded federal and State standards twice in 2017, each. Additionally, PM_{10} concentrations exceeded State standards multiple times in 2017 and 2018 and federal standards once in 2018, and $PM_{2.5}$ concentrations exceeded federal standards several times in 2017 and 2018. No other thresholds were exceeded in the years 2016 through 2018.

e. Existing Operational Emissions

Housing Incentive Program Expansion

The program area includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road in Palo Alto. Within the program area there are three service stations, two car rental and sales businesses, and three car repair and oil change businesses. The other parcels within the area contain other commercial and service uses, including a hotel, a fast food restaurant, and a light manufacturing business. The existing program area generates mobile source emissions from passenger vehicles and trucks, including delivery trucks, traveling to and from the program area, as well as emissions associated with energy use and area sources such as landscaping maintenance equipment.

788 San Antonio Road Project

The project site currently has two single-story commercial buildings of 12,200 square feet and 6,500 square feet, respectively. One building currently contains a fitness studio and a storage building, and the other contains a construction/concrete company. The operational emissions for these buildings

include mobile source emissions from passenger vehicles and trucks, yard trucks to handle cargo, energy emissions, and area source emissions. The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to calculate total existing emissions at the project site, using the methodology described in Section 4.1.2 below. Table 4.1-4 summarizes the existing operational emissions.

Table 4.1-3 Estimated Existing Operational Emissions – 788 San Antonio Road Project Site

	Estimated Emissions (lbs/day)					
Sources	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Area	0.5	<0.01	<0.01	<0.01	<0.01	0.00
Energy	<0.01	0.1	0.1	<0.01	<0.01	<0.01
Mobile	0.3	1.2	2.8	0.8	0.2	<0.01
Total Gross Emissions	**0.8**	**1.3**	**2.8**	**0.8**	**0.2**	**<0.01**

Totals may not add up due to rounding.

Source: Table 2.0 "Overall Operation-unmitigated" emissions. CalEEMod Baseline worksheets in Appendix C. For a conservative approach, the highest emissions number was used, from Winter or Summer analysis.

f. Regulatory Setting

The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the U.S. EPA administers the Clean Air Act (CAA). The CAA is administered by the CARB at the state level and by the AQMDs at the regional and local levels. The BAAQMD regulates air quality at the regional level, which includes the nine-county Bay Area.

Federal

The U.S. EPA is responsible for enforcing the federal CAA. The U.S. EPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the 1977 CAA and subsequent amendments. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g. beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

State

In California, the CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS). The California CAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other

emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective on March 1996. CARB oversees the functions of local APCDs, which in turn administer air quality activities at the regional and county level.

Regional

BAAQMD Clean Air Plan

The BAAQMD is responsible for assuring that the federal and state ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

The BAAQMD adopted the 2017 Clean Air Plan (2017 Plan) on April 19, 2017 as an update to the 2010 Clean Air Plan. The 2017 Plan, which focuses on protecting public health and the climate, defines an integrated, multi-pollutant control strategy that includes all feasible measures to reduce emissions of ozone precursors (including transport of ozone and its precursors to neighboring air basins), PM, and toxic air contaminants (TACs). To protect public health, the control strategy will decrease population exposure to PM and TACs in communities that are most impacted by air pollution with the goal of eliminating disparities in exposure to air pollution between communities. The control strategy will protect the climate by reducing GHG emissions and developing a long-range vision of how the Bay Area could look and function in a year 2050 post-carbon economy (BAAQMD 2017b).

Plan Bay Area: Strategy for a Sustainable Region

Plan Bay Area is the Bay Area's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). Plan Bay Area was adopted jointly by the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) on July 18, 2013. The SCS lays out a development scenario for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB.

City of Palo Alto 2030 Comprehensive Plan

The City's 2030 Comprehensive Plan Natural Environment Element describes the City's efforts and programs to improve air quality. The plan includes goals and policies focused on supporting alternative modes of transportation to reduce dependence on the automobile (City of Palo Alto 2017a). Goal N-5 identifies the City's commitment to "Clean, healthful air for Palo Alto and the San Francisco Bay Area."

Relevant policies from the Comprehensive Plan include:

- Policy N-5.1: Support regional, State, and federal programs that improve air quality in the Bay Area because of its critical importance to a healthy Palo Alto.
- Policy N-5.2: Support behavior changes to reduce emissions of particulates from automobiles.

- Policy N-5.3: Reduce emissions of particulates from, manufacturing, dry cleaning, construction activity, grading, wood burning, landscape maintenance, including leaf blowers and other sources.
- Policy N-5.4: All potential sources of odor and/or toxic air contaminants shall be adequately buffered, or mechanically or otherwise mitigated to avoid odor and toxic impacts that violate relevant human health standards.
- Policy N-5.5: Support the BAAQMD in its efforts to achieve compliance with existing air quality regulations by continuing to require development applicants to comply with BAAQMD construction emissions control measures and health risk assessment requirements.
- Policy N-5.6: Mitigate potential sources of toxic air contaminants through siting or other means to reduce human health risks and meet the BAAQMD's applicable threshold of significance. When siting new sensitive receptors such as schools, day care facilities, parks or playgrounds, medical facilities and residences within 1,000 feet of stationary sources of toxic air contaminants or roadways used by more than 10,000 vehicles per day, require projects to consider potential health risks and incorporate adequate precautions such as high-efficiency air filtration into project design.

In addition, Mitigation Measure AIR-2a in the EIR for the City's Comprehensive Plan states, "as part of the City's development approval process, the City shall require applicants for future development projects to comply with the current BAAQMD basic control measures for reducing construction emissions of PM_{10} (Table 8-1, *Basic Construction Mitigation Measures Recommended for All Proposed Projects,* of the BAAQMD CEQA Guidelines)" (City of Palo Alto 2016a).

Further Mitigation Measure AIR-3b in the EIR for the City's Comprehensive Plan requires compliance with best practices for air filtration recommended by the BAAQMD. Such measures include, but are not limited to, the following, which would be incorporated as conditions of approval:

- Air intakes shall be located away from high volume roadways and/or truck loading zones
- Heating, ventilation, and air conditioning systems of the buildings shall be provided with appropriately sized MERV filters (City of Palo Alto 2016a).

[For reference, the BAAQMD Basic Construction Mitigation Measures are listed here (BAAQMD 2017c).

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, with priority given to the use of recycled water for this activity when feasible.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping shall be prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure

Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.]

City of Palo Alto Municipal Code

Development projects in the City are required to comply with Title 16, Chapter 16.14, California Green Building Standards, and Chapter 16.18, Local Energy Efficiency Standards for Certain Buildings and Improvements, contained in the City of Palo Alto Municipal Code (City of Palo Alto 2020a). Compliance with these requirements would reduce the overall energy demand of the project.

The Palo Alto Green Building Program includes implementation of the Green Building Ordinance, the Climate Protection Plan, and the Zero Waste Program. The Palo Alto Green Building Ordinance (Ord. 5393, 2017) requires applicants to incorporate sustainable design, construction, and operational requirements into most single-family residential, multi-family residential, and non-residential projects.

g. Sensitive Receptors

BAAQMD generally defines a sensitive receptor as a facility or land use that houses or attracts members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Most sensitive receptor locations are therefore residences, schools, and hospitals and are located throughout the City. In addition, the project would introduce new sensitive receptors into the program area by incrementally constructing new multi-family residences.

The following existing places are considered sensitive receptor locations within 1,000 feet of the project site and program area:

- Sequoia Academy (tutoring services): approximately 25 feet north of the project site, within program area
- The Greenhouse Residences: approximately 260 feet west of the project site and 130 feet west of the program area
- Taube Koret Campus for Jewish Life/Moldaw Residences: approximately 670 feet northwest of the project site and 163 feet northwest of the program area
- Golden State Youth Orchestra: approximately 575 feet northwest of the project site and 355 feet west of the program area
- Greendell Elementary School: approximately 1,770 feet southwest of the project site and 520 feet southwest of the program area
- Residences north of San Antonio Court: approximately 1,690 feet south of the project site and 412 feet southwest of the program area
- Residences on Keats Court and Byron Street: approximately 1,350 feet southwest of the project site and 117 feet southwest of the program area

- Greendell School: approximately 1,800 feet southwest from the project site and 490 feet southwest of the program area
- Athena Academy: approximately 1,782 feet southwest from the project site and 557 feet southwest from the program area
- Gideon Hauser Jewish School: 2,188 feet southwest of the project site and 833 feet southwest of the program area
- Mitchell Park Library/Cubberley Community Center/Palo Alto Junior Museum and Zoo: approximately 1,655 feet southwest of the project site and 857 feet southwest of the program area

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds

This analysis uses the BAAQMD's May 2017 *CEQA Air Quality Guidelines* to evaluate air quality. The May 2017 Guidelines include revisions made to the 2010 Guidelines, addressing the California Supreme Court's 2015 opinion in the *Cal. Bldg. Indus. Ass'n vs. Bay Area Air Quality Mgmt. Dist., 62 Cal. 4th 369* (BAAQMD 2017b).The numeric thresholds in the May 2017 BAAQMD CEQA Air Quality Thresholds were used for this analysis to determine whether the impacts of the project exceed the thresholds identified in Appendix G of the State CEQA Guidelines.

Significance Thresholds

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on air quality if it would:

1. Conflict with or obstruct the implementation of the applicable air quality plan
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
3. Expose sensitive receptors to substantial pollutant concentrations
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Emissions Thresholds

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all of the screening criteria are met by a project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions and air quality impacts would be considered less than significant. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For projects that are infill, such as this project, emissions would be less than the greenfield-type project on which the screening criteria are based (BAAQMD 2017c). Table 4.1-4 shows the BAAQMD's screening level sizes for apartment and retail uses.

Table 4.1-4 BAAQMD Air Pollutant and Precursor Screening Level Sizes

Land Use Type	Operational Criteria Pollutant Screening Size	Construction-Related Screening Size
Apartment, low-rise	325 dwelling units	114 dwelling units
Apartment, mid-rise	494 dwelling units	240 dwelling units
Strip mall	99,000 square feet	277,000 square feet

Source: Table 3-1, BAAQMD 2017c.

In order for construction-related emissions to be considered less than significant, projects must meet the following criteria in addition to being below the applicable screening level shown in Table 4.1-4:

1. All *Basic Construction Mitigation Measures* would be included in the project design and implemented during construction; and
2. Construction-related activities would not include any of the following:
    a. Demolition;
    b. Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously);
    c. Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development);
    d. Extensive site preparation (i.e., greater than default assumptions used by the Urban Land Use Emissions Model [URBEMIS] for grading, cut/fill, or earth movement); or
    e. Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.

Future projects under the HIP expansion would likely involve demolition and therefore would not meet the screening criteria for construction emissions. The 788 San Antonio Road project involves demolition and includes simultaneous construction of more than one land use type (residential and retail). Therefore, the project does not meet all of the screening criteria for construction emissions.

For projects that do not meet the screening criteria, BAAQMD provides numeric significance thresholds. Table 4.1-5 presents the significance thresholds for construction and operational-related criteria air pollutant and precursor emissions being used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the 788 San Antonio Road development would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 4.1-5.

Table 4.1-5 Air Quality Thresholds of Significance

Pollutant/Precursor	Construction-Related Thresholds	Operation-Related Thresholds	
	Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs/day)
ROG	54	10	54
NOX	54	10	54
PM_{10}	82 (exhaust)	15	82
$PM_{2.5}$	54 (exhaust)	10	54

Notes: tpy = tons per year; lbs/day = pounds per day; NOX = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.

Source: Table 2-1, BAAQMD, CEQA Air Quality Guidelines, May 2017.

Localized Carbon Monoxide Concentrations

To ensure safe levels of local carbon monoxide (CO) emissions, California ambient air quality standards (CAAQS) set the following thresholds for CO:

- 9.0 ppm (8-hour average)
- 20.0 ppm (1-hour average)

Toxic Air Contaminate Emissions

The BAAQMD's *CEQA Air Quality Guidelines* sets thresholds applicable to projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or $PM_{2.5}$ emissions. For assessing community risks and hazards, a 1,000-foot radius is recommended around the project property boundary. If impacts due to emissions of TACs or $PM_{2.5}$ from any individual source would exceed any of the thresholds listed below, the project would result in a significant impact:

- Non-compliance with a Community Risk Reduction Plan
- An excess cancer risk level of more than 10 in one million (10E-06), or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 from any individual source would be a significant cumulatively considerable contribution
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from any individual source would be a significant cumulatively considerable contribution

In the Bay Area, there are a number of urban or industrialized communities where the exposure to TACs is relatively high in comparison to others. These same communities are often faced with other environmental and socio-economic hardships that further stress their residents and result in poor health outcomes. To address community risk from air toxics, BAAQMD initiated the Community Air Risk Evaluation (CARE) program in 2004 to identify locations with high levels of risk from TACs co-located with sensitive populations and use the information to help focus mitigation measures. Through the CARE program, the Air District developed an inventory of TAC emissions for 2005 and compiled demographic and heath indicator data. According to the findings of the CARE Program, diesel PM, mostly from on and off-road mobile sources, accounts for over 80 percent of the inhalation cancer risk from TACs in the Bay Area. Impacted communities as of November 2009 include the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood

City/East Palo Alto, Richmond/San Pablo, and San Jose. The nearest impacted community is East Palo Alto, approximately 10 miles northwest of the program area.

Methodology for Estimating Emissions

HOUSING INCENTIVE PROGRAM EXPANSION

At this time, the only development proposed in the program area is the 788 San Antonio Road development, which is analyzed in this EIR. Other future development is not defined to a level that would allow project-level analysis and thus it would be speculative to include project-level impacts as part of this analysis. Rather, impacts for the program area are discussed qualitatively. It is assumed that all projects developed in the program area would comply with applicable regulatory standards, including BAAQMD rules and regulations regarding construction emission control measures per the Comprehensive Plan, including using equipment BACT and using low volatile organic compound (VOC) architectural coatings. A discussion of mobile source emissions from the net change in regional vehicle miles traveled (VMT) uses information from the Traffic Impact Study (TIS) prepared by TJKM (Appendix H).

Localized Carbon Monoxide Concentrations

BAAQMD provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. If the following criteria are met, a project would result in a less than significant impact related to local CO concentrations:

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Toxic Air Contaminant Emissions

BAAQMD's *CEQA Air Quality Guidelines* include risk and hazard thresholds that are intended to apply to projects that would site new permitted or non-permitted sources in proximity to receptors and for projects that would site new sensitive receptors in proximity to permitted or non-permitted sources of TACs or $PM_{2.5}$ emissions.

788 SAN ANTONIO ROAD PROJECT

The significance thresholds described in the previous subsection represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. CalEEMod version 2016.3.2 was used to calculate total project emissions, which include construction and operational emissions.

Short-Term Construction Emissions

Construction-related emissions are generally short-term in duration but may still cause adverse air quality impacts. Demolition of the existing on-site commercial structures and construction of the proposed mixed-use project would generate temporary emissions. Temporary emissions would result from three primary sources: operation of construction vehicles (e.g., scrapers, loaders, and excavators); ground disturbance during clearing and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances. The extent of daily emissions, particularly ROGs and NO_X emissions, generated by construction equipment depends on the quantity of equipment used and the hours of operation for each project. The extent of fugitive dust ($PM_{2.5}$ and PM_{10}) emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. The amount of ROG emissions generated by paints and oil-based substances, such as asphalt, depends upon the type and amount of material utilized.

CalEEMod was used to estimate air pollutant emissions associated with the 788 San Antonio Road development construction, which was assumed to occur over 22 months (see Appendix C for CalEEMod calculations). Construction would include demolition, site preparation, grading, construction, paving, and architectural coating. Grading would require approximately 20,170 cubic yards of soil to be exported based on applicant provided information. Architectural coating was assumed to partially overlap the building construction phase, consistent with typical construction schedules. Construction activities would result in temporary air quality impacts that may vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions.

In addition, it was assumed the 788 San Antonio Road development would comply with applicable regulatory standards, including BAAQMD rules and regulations regarding construction emission control measures. These include using equipment with Best Available Control Technology (BACT) and using low VOC architectural coatings. Although required, CalEEMod was run without using equipment with BACT and used default VOC architectural coatings. Pursuant to Palo Alto Comprehensive Plan Policy N-5.5 and Mitigation Measure AIR-2a, which requires development applicants to comply with BAAQMD construction emissions control measures, watering of exposed surfaces was assumed to occur twice daily. CalEEMod settings were changed from default of no watering to reflect this policy requirement. Therefore, the modeling results provide a conservative estimate of emissions.

Long-Term Emissions

CalEEMod was also used to estimate operational emissions for the 788 San Antonio Road development, which included emissions from area sources, energy use, and mobile sources. Area source emissions, which would be generated by landscape maintenance equipment, consumer products, and architectural coatings, were estimated using CalEEMod defaults. Mobile source emissions that would be generated by the increase in motor vehicle trips to and from the project site as compared to existing conditions are calculated based on daily project traffic generation rates from the TIS prepared by TJKM (Appendix G). Energy usage from non-residential energy usage was reduced by 30 percent to account for the requirements of 2019 Title 24 standards. CalEEMod does not incorporate water use reductions achieved by 2016 CALGreen (Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water

use efficiency. Thus, in order to account for compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for new development.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 DEVELOPMENT UNDER THE HIP EXPANSION, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, COULD RESULT IN AIR POLLUTION EMISSIONS THAT WOULD BE INCONSISTENT WITH THE 2017 BAAQMD CLEAN AIR PLAN, WHICH IS THE APPLICABLE AIR QUALITY PLAN. THE 788 SAN ANTONIO ROAD DEVELOPMENT ALONE WOULD BE CONSISTENT WITH THE OBJECTIVES OF THE 2017 CLEAN AIR PLAN. HOWEVER, CONSTRUCTION OF PROJECTS IN THE HIP EXPANSION AREA WOULD POTENTIALLY EXCEED BAAQMD THRESHOLDS FOR CRITERIA POLLUTANTS AND CONFLICT WITH THE CLEAN AIR PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

The California Clean Air Act requires air districts to create a Clean Air Plan that describes how the jurisdiction will meet air quality standards. These plans must be updated every three years. The most recently adopted air quality plan is the BAAQMD 2017 Clean Air Plan. As described in the Air Quality Management section above, the 2017 Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, pursuant to air quality planning requirements defined in the California Health and Safety Code. To fulfill State ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors— ROGs and NO_X —and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Clean Air Plan builds upon and enhances the air district's efforts to reduce emissions of fine particulate matter and toxic air contaminants. The 2017 Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

The 2017 Clean Air Plan focuses on two paramount goals:

- Protect air quality and health and the regional and local scale by attaining all state and national air quality standards and eliminating disparities among Bay Area communities with cancer health risk from toxic air contaminants
- Protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050

Under BAAQMD's methodology, a determination of consistency with the most recently adopted clean air plan should demonstrate that a project:

- Supports the primary goals of the air quality plan
- Includes applicable control measures from the air quality plan
- Does not disrupt or hinder implementation of any air quality plan control measures

The most recently adopted air quality plan is the BAAQMD 2017 Clean Air Plan. Projects that would not support the 2017 Clean Air Plan's goals would not be considered consistent with the 2017 Clean Air Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the clean air plan's goals.

HOUSING INCENTIVE PROGRAM EXPANSION

Consistency with Plan Objectives

The BAAQMD threshold of significance for plans is whether the plan is consistent with the current air quality plan and whether the projected VMT or vehicle trip increase would be less than or equal to projected population increase. The HIP expansion would reduce overall VMT by increasing mixed-use development that includes housing in close proximity to entertainment, retail, visitor lodging, and employment opportunities that could enable residents to live, work, and shop without the use of motor vehicles. The project would be consistent with the goals of the 2017 Plan because it would encourage new development in an area that is served by transit and is conducive to bicycling and walking, thereby reducing emissions of ozone precursors.

One of the strategies included in the 2017 Plan is TR10: Land Use Strategies, which supports land use patterns that reduce VMT and associated emissions and exposure to TACs, especially within infill locations and impacted communities. The purpose of this control measure is to reduce emissions of the key ozone precursors, ROG and NOx, particulate matter, air toxics and greenhouse gases by promoting land use patterns, policies, and infrastructure investments that support higher density mixed-use, residential and employment development near transit. This measure also includes actions to reduce exposure to toxic air contaminants (BAAQMD 2017b).

The HIP expansion would provide infill residential development in the City of Palo Alto. As discussed in Section 4.6, *Transportation*, the TIS provided in Appendix H states that employed residents in the City of Palo Alto average 19.15 daily miles per resident, including Palo Alto residents who commute outside of the City. Many of the employment positions located in Palo Alto are currently filled by non-resident commuters that average 28.08 daily miles per employee, and the overall average for Palo Alto is 26.06 daily miles per employee who works in Palo Alto. The HIP expansion would add 818 dwelling units that would be allowable by the rezoning. The TIS estimated that 1,000 jobholders would reside in these residences, which would result in a potential annual reduction of more than 1.5 million miles, attributable to improving the balance of housing to jobs. Therefore, the HIP expansion would be consistent with the goals of the 2017 Clean Air Plan.

Air Quality Standards

As shown in the response to the analyses presented in Impact AQ-2 (see below), construction of projects in the HIP expansion area would potentially result in exceedances of BAAQMD 2017 thresholds for criteria air pollutants and thus would conflict with the 2017 Clean Air Plan's goal to attain air quality standards. Therefore, consistent with the City's CEQA thresholds, the proposed project would conflict with the air quality goals of the 2017 Clean Air Plan. Mitigation Measure AQ-1 would reduce potential impacts to a less than significant level.

788 SAN ANTONIO ROAD PROJECT

Consistency with Plan Objectives

As a project within the HIP expansion program area, the 788 San Antonio Road project would provide infill residential development in the City of Palo Alto and would be consistent with Strategy TR10 of the 2017 Clean Air Plan. The 788 San Antonio Road project would provide housing in a segment of the Bay Area that has a surplus of jobs relative to the supply of housing. The large supply of jobs in Palo Alto, Mountain View, and other neighboring cities results in relatively long commute lengths for many employees, particularly those commuting from homes in the East Bay and San

Francisco. By contrast, the provision of housing in Palo Alto would help to reduce net VMT at a regional level, by providing homes closer to job locations. As discussed with the HIP expansion, employed residents in the City of Palo Alto average 19.15 daily miles per resident, including Palo Alto residents who commute outside of the City. Many of the employment positions located in Palo Alto are currently filled by non-resident commuters that average 28.08 daily miles per employee, and the overall average for Palo Alto is 26.06 daily miles per employee who works in Palo Alto. Therefore, the 788 San Antonio Road project would not conflict with or obstruct the implementation of an applicable air quality plan. Impacts would be less than significant.

Air Quality Standards

As shown in the response to the analyses presented in Impacts AQ-2 and AQ-3 (see below), the 788 San Antonio Road project would not result in exceedances of BAAQMD 2017 thresholds for criteria air pollutants and thus would not conflict with the 2017 Clean Air Plan's goal to attain air quality standards. Therefore, consistent with the City's CEQA thresholds, the proposed project would not conflict with the air quality goals of the 2017 Clean Air Plan.

SIGNIFICANCE CONCLUSION

The construction and operation of the 788 San Antonio Road project would not conflict with or obstruct the implementation of the BAAQMD 2017 Clean Air Plan. The HIP expansion would not conflict with the land use strategies of the 2017 Clean Air Plan. However, it is unknown at this time if the construction of other projects that will be constructed in the HIP expansion area would exceed BAAQMD standards. Further environmental analysis and documentation at a project-specific level would be necessary to determine if construction of individual projects under the HIP expansion would exceed BAAQMD thresholds for criteria pollutants. Therefore, the HIP expansion could conflict with the 2017 Clean Air Plan. Mitigation Measure AQ-1, as discussed in Impact AQ-2, would reduce potential impacts to a less than significant level.

Mitigation Measures

Mitigation Measure AQ-1 described below under Impact AQ-2 would reduce potential impacts to a less than significant level.

Significance After Mitigation

With implementation of Mitigation Measure AQ-1, the HIP expansion would be consistent with the goals of the 2017 Clean Air Plan and impacts would be less than significant.

Threshold 2:	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Impact AQ-2 CONSTRUCTION AND OPERATION OF THE 788 SAN ANTONIO ROAD PROJECT WOULD NOT RESULT IN EMISSIONS OF CRITERIA POLLUTANTS IN EXCESS OF BAAQMD THRESHOLDS AND THE PROJECT WOULD BE IN COMPLIANCE WITH BAAQMD CARBON MONOXIDE THRESHOLDS. HOWEVER, CONSTRUCTION OF FUTURE PROJECTS UNDER THE HIP EXPANSION COULD POTENTIALLY EXCEED BAAQMD STANDARDS FOR CRITERIA POLLUTANTS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Construction of future development under the HIP expansion in the program area, including the 788 San Antonio Road project, would generate temporary construction emissions (direct emissions) and long-term operational emissions (indirect emissions). Temporary air pollutant emissions generated by construction are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to ROG that would be released during the drying phase following application of architectural coatings. Long-term emissions associated with operation of projects under the HIP expansion would include emissions from vehicle trips (mobile sources); natural gas and electricity use (energy sources); and landscape maintenance equipment, consumer products, and architectural coating associated with on-site development (area sources).

Construction Emissions

Construction emissions are referred to generally as temporary impacts of a project, but they have the potential to represent a significant impact with respect to air quality. Fugitive dust emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility. General site grading operations are the primary sources of fugitive dust emissions. However, these emissions can vary greatly, depending on the level of activity, the specific operations taking place, the number and type of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance from site grading and excavation. Emissions of ozone precursors NO_X and ROG are generated during the operation of construction equipment and other sources, such as construction worker vehicles and vendor trips. Consistent with the Mitigation Measure AIR-2a of the EIR for the City's 2030 Comprehensive Plan, projects in Palo Alto are required to implement control measures during all phases of construction on the project site to reduce dust fall-out emissions, as discussed in Section 4.1.1.

HOUSING INCENTIVE PROGRAM EXPANSION

The analysis of the HIP expansion in this EIR generally assumes redevelopment of all parcels in the program area. Construction associated with development of projects under the HIP expansion would temporarily increase air pollutant emissions from equipment, vendor trips, and worker trips which may create localized areas of unhealthy air pollution levels or air quality nuisances. However, projects would be developed individually over time. BAAQMD's 2017 *CEQA Air Quality Guidelines* does not contain plan-level significance thresholds for construction air pollutant emissions. The guidelines include project-level thresholds for construction emissions. If a project's construction emissions fall below the project-level thresholds, the project's impacts to regional air quality are considered individually and cumulatively less than significant.

Mitigation Measure AIR-2a in the EIR for the City's 2030 Comprehensive Plan requires development applicants to comply with BAAQMD construction emissions control measures, which would apply to all projects developed in the HIP expansion area. BAAQMD and CARB have regulations that address

the handling of hazardous air pollutants such as lead and asbestos, which could occur from demolition activities and asbestos emissions. BAAQMD rules and regulations address both the handling and transport of these contaminants. Site preparation and grading may cause wind-blown dust that could contribute particulate matter into the local atmosphere. BAAQMD requires implementation of BMPs for all projects to reduce fugitive dust impacts to less-than-significant levels.

The severity of the impacts would vary depending upon the size of the program activity and the intensity of construction activities. None of the parcels listed in Table 2-2 in Section 2, *Project Description*, could be developed with more than 100 units. As shown in Table 4.1-4 of this impact analysis, the BAAQMD screening criteria thresholds are 114 dwelling units for low-rise apartment complexes and 240 dwelling units for mid-rise apartment complexes. Therefore, projects developed on individual parcels in the program area would not likely exceed the BAAQMD thresholds that indicate whether a project could result in a significant air quality impact for construction emissions. Further, it is unlikely that projects would include commercial spaces greater than the screening criteria of 277,000 square feet for commercial retail. BAAQMD notes that these criteria thresholds mainly apply for greenfield development, and that infill projects would likely result in fewer emissions. Additionally, Mitigation Measure AIR-2a in the EIR for the City's Comprehensive Plan that requires development projects to comply with the current BAAQMD *Basic Construction Mitigation Measures* (City of Palo Alto 2016a). However, it is unknown at this time if future projects would combine multiple parcels to include development over screening criteria levels or if construction of individual projects would result in emissions of criteria pollutants below BAAQMD thresholds. This impact is potentially significant and mitigation is required.

788 SAN ANTONIO ROAD PROJECT

As described in the methodology subsection above, approximately 20,170 cubic yards of export material was included in the CalEEMod construction emissions estimation from grading activities, which would emit fugitive dust and ozone precursors from vehicles transporting material off-site. Hauling trips would also be necessary to remove debris associated with demolition of the two existing structures on the project site. In total, project construction would require approximately 2,606 round-trip hauling truck trips, assuming a standard load of 16 cubic yards per truck trip. Construction phase lengths were estimated based on CalEEMod defaults and adjusted to account for project-specific factors, such as demolition square footage and grading export quantities. Construction would occur over approximately two years, with demolition lasting approximately 40 days, site preparation lasting approximately six days, grading lasting approximately two months, building construction lasting approximately one year, paving lasting approximately 25 days, and architectural coating lasting approximately one month.

The project would be required to comply with all BAAQMD rules and regulations regarding construction emission control measures. These include using equipment with Best Available Control Technology (BACT) and using low VOC architectural coatings. Although required, CalEEMod was run without using equipment with BACT and used default VOC architectural coatings. Thus, the modeling results provide a conservative estimate of emissions.

Table 4.1-6 summarizes the estimated maximum daily construction emissions each year during the construction period. While BAAQMD thresholds apply to average daily construction emissions, this analysis conservatively analyzes estimated maximum daily construction emissions, as reported by CalEEMod.

Table 4.1-6 Estimated Construction Emissions – 788 San Antonio Road Project

	Maximum Emissions[1] (lbs/day)					
Construction Year	**ROG**	**SO_x**	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Modeled Maximum Daily Construction Emissions	40.6	0.1	24.3	12.1	3.5	1.5
BAAQMD Thresholds (average daily emissions)	54	N/A	54	N/A	82	54
Threshold Exceeded?	No	N/A	No	N/A	No	No

N/A = not applicable; no BAAQMD threshold for CO or SOX.

Source: Table 2.1 "Overall Construction-mitigated" emissions in CalEEMod Project worksheets in Appendix C. Mitigated analysis accounts for construction site watering pursuant to BAAQMD recommended measures and City of Palo Alto Comprehensive Plan Policy N-5.5.

As shown in Table 4.1-6, project construction emissions would not exceed BAAQMD thresholds for ROG, NOx, PM_{10}, or $PM_{2.5}$ and impacts would be less than significant.

Operational Emissions

HOUSING INCENTIVE PROGRAM EXPANSION

Development under the HIP expansion program would result in long-term air pollutant emissions over the course of operations. Emissions include area sources, energy sources, and mobile emissions. Area sources include use of consumer products, use of gas-powered landscaping equipment, re-application of architectural coating (re-painting), and use of barbeque grills or hearths. Energy sources include natural gas for uses such heating/air conditioning, appliances, lighting, and water heating.

Similar to thresholds for construction emissions, the BAAQMD's 2017 *CEQA Air Quality Guidelines* have no program or plan-level significance thresholds for operational air pollutant emissions. The guidelines include project-level thresholds for operational emissions. As shown in Table 4.1-4, these screening level criteria under which projects are assumed to have less than significant operational air quality impacts include 325 dwelling units for low-rise apartment complexes and 494 dwelling units for mid-rise apartment complexes. It is unlikely that projects in the program area would exceed the screening criteria for low-rise or mid-rise residential. BAAQMD notes that these criteria thresholds mainly apply for greenfield development, and that infill projects would likely result in fewer emissions.

In addition, future projects in the program area would comply with existing BAAQMD regulations, the City of Palo Alto Comprehensive Plan, the Palo Alto Municipal Code, and the Palo Alto Green Building Ordinance, which requires applicants to incorporate sustainable design. Additionally, projects would replace existing buildings which were likely constructed without energy-saving features. Therefore, it can be assumed that projects implemented in the HIP expansion would not individually contribute to a significant increase in criteria pollutants from area sources.

Mobile emissions include vehicle trips (including residents, employees, deliveries, visitors, and customers to the commercial areas). As discussed in Impact AQ-1, buildout of the HIP expansion would potentially result in an annual reduction of more than 1.5 million miles, attributable to improving the balance of housing to jobs. Additionally, Mitigation Measure GHG-1 described in Section 4.4, *Greenhouse Gas Emissions,* would further reduce projected mobile source emissions and air quality impacts by reducing motor vehicle trips.

CO Emissions

As previously discussed in the regulatory section, BAAQMD provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. The project would need to meet all three criteria to result in a less than significant impact related to CO concentrations. The information below is derived from the TIS prepared by TJKM (Appendix B of the TIS located in Appendix H of this EIR) and from Section 4.6, *Transportation*.

- The project would be consistent with an applicable congestion management program [Santa Clara Valley Transportation Authority (VTA) Congestion Management Program (CMP)].
- The project traffic would generate 4,361 net vehicle trips per day and would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, as the project site is not located near such intersections.

Analysis of the project's traffic impacts indicates that the proposed project meets all three criteria listed above. The level of service (LOS) standard (minimum acceptable operations) for signalized intersections in the City of Palo Alto is LOS D or better. The City has also adopted LOS E as the minimum overall performance measure for CMP monitored roadways, consistent with VTA guidelines. Implementation of the HIP expansion would have a less than significant impact at the designated CMP intersections of San Antonio Road/Charleston Road and San Antonio Road/Middlefield Road. As a result, implementation of the HIP expansion would have a less than significant impact on local CO concentrations.

788 SAN ANTONIO ROAD PROJECT

Operational emissions are those associated with the general use of the project after construction. Operational emissions for the project include emissions from vehicle trips (mobile sources) and electricity use (energy sources), landscape maintenance equipment, consumer products, and architectural coating associated with on-site development (area sources). Table 4.1-7 summarizes the project's gross operational daily emissions and compares them to BAAQMD thresholds. Table 4.1-8 summarizes the project's gross operational annual emissions and compares them to BAAQMD thresholds.

Table 4.1-7 Estimated 788 San Antonio Road Project Operational Daily Emissions

	Estimated Emissions (lbs/day)					
Sources	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Area	2.5	0.4	8.6	<0.1	<0.1	<0.1
Energy	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Mobile (Passenger Cars)	1.7	7.6	19.2	6.1	1.7	<0.1
Total Gross Emissions	**4.2**	**8.2**	**27.9**	**6.1**	**.7**	**<0.1**
BAAQMD Thresholds	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	No	No	No	No

N/A = not applicable; no BAAQMD threshold for CO or SO_X

Totals may not add up due to rounding.

Source: Table 2.2 "Overall Operation-unmitigated" winter emissions CalEEMod worksheets in Appendix C. Maximum daily emissions are reported.

Table 4.1-8 Estimated 788 San Antonio Road Project Operational Annual Emissions

	Estimated Emissions (tpy)					
Sources	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Area	0.4	<0.1	1.6	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile (Passenger Cars	0.3	1.2	2.9	0.9	0.3	<0.1
Total Gross Emissions	**0.7**	**1.2**	**3.7**	**0.9**	**0.3**	**<0.1**
BAAQMD Thresholds	10	10	N/A	15	10	N/A
Threshold Exceeded?	No	No	No	No	No	No

tpy = tons per year

N/A = not applicable; no BAAQMD threshold for CO or SO_X.

Totals may not add up due to rounding.

Source: Table 2.2 "Overall Operation-unmitigated" annual emissions. CalEEMod worksheets in Appendix C.

Table 4.1-9 summarizes the project's net change in operations by comparing project operational emissions with existing operational emissions by current uses on the project site, using the information provided in Table 4.1-3.

Table 4.1-9 Net 788 San Antonio Road Project Operational Emissions

	Estimated Emissions					
Sources	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Daily Emissions (lbs/day)						
Project Gross Emissions	**4.2**	**8.2**	**27.9**	**6.1**	**1.7**	**<0.1**
Existing Gross Emissions	0.8	1.3	2.8	0.8	0.2	<0.1
Net Emissions	**3.4**	**6.3**	**25.1**	**5.3**	**1.5**	**<0.1**
BAAQMD Thresholds	54	54	N/A	82	54	N/A
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Annual Emissions (tpy)						
Project Gross Emissions	**0.9**	**1.7**	**5.3**	**1.1**	**0.3**	**<0.1**
Existing Gross Emissions	0.1	0.2	0.4	0.1	<0.1	<0.1
Net Emissions	**0.8**	**1.5**	**4.9**	**1.0**	**0.3**	**<0.1**
BAAQMD Thresholds	10	10	N/A	15	10	N/A
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

tpy = tons per year

N/A = not applicable; no BAAQMD threshold for CO or SO_X.

Totals may not add up due to rounding.

Source: Table 2.2 "Overall Operation-unmitigated" emissions. CalEEMod Baseline and Project worksheets in Appendix C. For a conservative approach, the highest emissions number was used, from Winter or Summer analysis. Maximum daily emissions are reported.

As shown in Table 4.1-7, Table 4.1-8, and Table 4.1-9, the project's total estimated gross and net operational daily and annual emissions would not exceed BAAQMD maximum daily emissions thresholds for ROG, NOx, PM_{10}, or $PM_{2.5}$. Therefore, the project would not result in potentially significant air quality impacts from operation emissions and impacts would be less than significant.

CO Emissions

As previously discussed in the regulatory section, BAAQMD provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. The 788 San Antonio Road development would need to meet all three criteria to result in a less than significant impact related to CO concentrations. The information below is derived from the TIS prepared by TJKM (Appendix B of the TIS located in Appendix G of this EIR) and from Section 4.6, *Transportation*.

- The project would be consistent with an applicable congestion management program [Santa Clara Valley Transportation Authority (VTA) Congestion Management Program (CMP)].
- The project traffic would generate 1,166 net vehicle trips per day and would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, as the project site is not located near such intersections.

Analysis of the 788 San Antonio Road development's traffic impacts indicates that the development meets all three criteria listed above. The level of service (LOS) standard (minimum acceptable

operations) for signalized intersections in the City of Palo Alto is LOS D or better. The City has also adopted LOS E as the minimum overall performance measure for CMP monitored roadways, consistent with VTA guidelines. The HIP expansion, including the 788 San Antonio Road project, would not conflict with the City's standards for LOS at the designated CMP intersections of San Antonio Road/Charleston Road and San Antonio Road/Middlefield Road. As a result, the project would have a less than significant impact on local CO concentrations.

As the project would be in compliance with BAAQMD criteria pollutant thresholds, and BAAQMD CO thresholds, the project would not result in individually or cumulatively significant impacts to air quality. Additionally, Mitigation Measure GHG-1, as described in Section 4.4, *Greenhouse Gas Emissions*, directs the project applicant to prepare a Transportation Demand Management (TDM) Plan to reduce the automobile traffic demand generated by the project, which would reduce projected mobile source emissions and air quality impacts. Impacts would be less than significant.

SIGNIFICANCE CONCLUSION

Both the operation of the 788 San Antonio Road project and operation of future developments under the HIP expansion would not result in a cumulative increase of criteria pollutants that exceed BAAQMD air quality standards. Construction of the 788 San Antonio Road project would not result in a cumulative increase of criteria pollutants that exceed BAAQMD air quality standards. However, since further environmental analysis and documentation is necessary determine if a significant impact would occur during construction of individual projects under the HIP expansion, impacts are assumed to be potentially significant and mitigation is required.

Mitigation Measures

The following mitigation measure is included to reduce air quality impacts associated with construction of projects implemented in the HIP expansion area. Because the 788 San Antonio Road development has been demonstrated not to exceed applicable construction emissions (see Table 4.1-6), Mitigation Measure AQ-1 does not apply to this development.

AQ-1 Construction Mitigation

For individual projects in the HIP expansion area that exceed the BAAQMD air pollutant and precursor screening levels, the project proponent for that particular development shall conduct a quantifiable analysis to measure construction-related impacts to air quality for all construction phases as described in the BAAQMD CEQA Guidelines (2017). If project construction would exceed BAAQMD thresholds for criteria pollutants, the City shall require the construction contractor(s) to implement additional BAAQMD-approved measures beyond Basic Control requirements and demonstrate that such measures would reduce emissions to below thresholds. Additional measures for development projects that exceed significance criteria may include, but are not limited to:

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12-inch compacted layer of wood chips, mulch, or gravel.
8. Minimizing the idling time of diesel-powered construction equipment to two minutes.
9. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
10. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
11. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_X and PM.
12. Limiting import/export of soils or limiting the number of hauling trips per day to reduce emissions of NO_X associated with hauling truck trips.
13. Phasing construction activities to reduce daily equipment use.

Significance After Mitigation

With mitigation, future projects under the HIP expansion in the program area would be required to quantify construction emissions and include emissions control measures as applicable to demonstrate projects would not exceed applicable thresholds for construction-related emissions. Therefore, impacts would be less than significant.

Threshold 3:	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3 DEVELOPMENT IN THE HIP EXPANSION AREA, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD NOT CREATE NEW STATIONARY SOURCES OF TOXIC AIR CONTAMINANT (TAC) EMISSIONS. CONSTRUCTION OF PROJECTS IN THE PROGRAM AREA WOULD NOT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL CONCENTRATIONS OF TACS WITH IMPLEMENTATION OF MITIGATION MEASURE AQ-1. DEVELOPMENT IN THE HIP EXPANSION AREA WOULD INTRODUCE NEW SENSITIVE RECEPTORS NEAR SOURCES OF TAC EMISSIONS, BUT COMPLIANCE WITH EXISTING CITY OF PALO ALTO REQUIREMENTS FOR USING BEST PRACTICES FOR AIR FILTRATION RECOMMENDED BY THE BAAQMD WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

CARB has identified diesel particulate matter as the primary airborne carcinogen in the state (ARB 2014). A primary source of diesel particulate matter is exhaust from vehicle traffic on highways. In addition, the BAAQMD recommends analyzing permitted stationary sources. BAAQMD also recommends an assessment of potential exposure to TACs for new sensitive receptors, such as residents, near highways and stationary sources. This analysis includes a discussion of project-sourced TACs (the potential for construction or operation of the project to generate new sources of

TACs), and project exposure to TACs (placement of new sensitive receptors to existing sources of TACs).

Project-Sourced TACs

HOUSING INCENTIVE PROGRAM EXPANSION

Construction-Related TACs

One sensitive receptor, Sequoia Academy, is location within the program area. Ten other existing places are identified as sensitive receptors within 1,000 feet of the program area boundary. The nearest sensitive receptors are the Greenhouse Residences approximately 130 feet west, Taube Koret Campus for Jewish Life/Moldaw Residences approximately 163 feet northwest, and residences on Keats Court and Byron Street approximately 117 feet southwest of the program area. However, new sensitive receptors would be introduced over the course of program implementation, as new residences would be incrementally constructed in the program area.

The greatest potential for TAC emissions during construction would be from diesel particulate emissions associated with heavy equipment operations. According to CARB methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk, which is expressed as an estimate of the increased changes of developing cancer due to facility emissions over a 70-year lifetime. Construction of the projects in the program area would not result in a long-term, ongoing source of TAC emissions. Construction activities would only occur for temporary durations incrementally over an estimated span of 20 years. Construction phases which require the most heavy-duty diesel vehicle usage and generate the highest levels of TAC emissions, such as demolition and site grading, would last for a much shorter duration than other construction phases. As a result, construction of the projects would not result in substantial, long-term source of emissions.

As discussed under Impacts AQ-1 and AQ-2, construction of individual projects in the program area would be subject to Mitigation Measure AIR-2a required in the EIR for the City's 2030 Comprehensive Plan, which states the City requires applicants for future development projects to comply with the current BAAQMD basic control measures for reducing construction emissions of PM_{10} (Table 8-1, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the BAAQMD CEQA Guidelines). These basic control measures are listed in Section 4.1.1, *Setting*, above. If individual projects would exceed BAAQMD emissions thresholds for criteria pollutants, Mitigation Measure AQ-1 would require further measures to reduce impacts to a less than significant level. With the required implementation of basic control measures to reduce construction dust emissions, nearby receptors would not be exposed to substantial pollutant concentrations. Therefore, construction activities associated with implementation of the HIP expansion would not expose existing sensitive receptors to substantial concentrations of TACs.

Operation-Related TACs

The HIP expansion would not include construction of new highways or roads which could be considered a new non-permitted source of TAC or $PM_{2.5}$ in proximity to receptors. According to BAAQMD's *2017 CEQA Guidelines*, common stationary source types of TAC and $PM_{2.5}$ emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to BAAQMD permit requirements. The proposed HIP expansion involves changes to zoning to increase housing in the program area. Although future projects in the HIP expansion may involve stationary sources of

TACs, this would not be a change from existing conditions. The proposed project would only allow increased housing density. Residential uses are not considered sources of TAC or $PM_{2.5}$. Therefore, the HIP expansion would not place new sources of TACs or $PM_{2.5}$ in proximity to receptors. If a future project in the program area includes use of stationary sources with the potential to emit TACs, such as a diesel backup generator, the applicant or tenant would be required to obtain an Authority to Construct, Permit to Operate, and/or Certificate of Registration from BAAQMD. As part of the permit process, each project is evaluated before construction and operation of equipment to ensure that all air quality requirements are met.

Two of the existing parcels in the program area are gasoline service stations. The HIP expansion could encourage sites in the program area to be redeveloped with residential uses. Therefore, should these sites be redeveloped, the HIP expansion could result in a reduction of existing TACs sources in the program area. Overall, operation of the HIP expansion would not introduce new project-sourced TACs and impacts would be less than significant.

788 SAN ANTONIO ROAD PROJECT

Construction-Related TACs

The sensitive receptors nearest to the project site are Sequoia Academy tutoring services, approximately 25 to the north and the Greenhouse Residences, approximately 260 feet to the west. The greatest potential for TAC emissions during construction would be from diesel particulate emissions associated with heavy equipment operations. According to CARB methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk, which is expressed as an estimate of the increased changes of developing cancer due to facility emissions over a 70-year lifetime. As discussed under Section 4.2.3(a), *Methodology and Significance Thresholds*, given the construction schedule, construction of the project would not result in a long-term (i.e., 70-year) source of TAC emissions. Construction activities for the project would only occur for a temporary duration, after which time all construction-related TAC emissions would cease. Further, there would be no residual emissions or corresponding individual cancer risk from construction activities after completion of the project. Construction of the project would take an estimated 22 months; however, the construction schedule estimates that the phases which require the most heavy-duty diesel vehicle usage and generate the highest levels of TAC emissions, such as demolition and site grading, would last for a much shorter duration. As a result, construction of the project would not result in substantial, long-term source of emissions.

As previously discussed in Impacts AQ-1 and AQ-2, construction of the project would not generate PM emissions that exceed BAAQMD significance thresholds. Furthermore, Mitigation Measure AIR-2a required in the EIR for the City's 2030 Comprehensive Plan states, "As part of the City's development approval process, the City shall require applicants for future development projects to comply with the current BAAQMD basic control measures for reducing construction emissions of PM_{10} (Table 8-1, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the BAAQMD CEQA Guidelines)." These basic control measures are listed in Section 4.1.1, *Setting*, above. With the required implementation of basic control measures to reduce construction dust emissions, nearby receptors would not be exposed to substantial pollutant concentrations. Therefore, the 788 San Antonio development's construction activities would not expose sensitive receptors to substantial concentrations of TACs.

Operation-Related TACs

The retail portion of the project would not include uses that could be considered a new permitted stationary source of TAC or $PM_{2.5}$ in proximity to receptors. If a tenant proposes the use of stationary sources with the potential to emit TACs, the tenant would be required to obtain an Authority to Construct, Permit to Operate, and/or Certificate of Registration from BAAQMD. As part of the permit process, each project is evaluated before construction and operation of equipment to ensure that all air quality requirements are met.

Other sources of potential air toxics associated with project operations include DPM from delivery trucks for commercial/retail uses (e.g., truck traffic on local streets and idling on adjacent streets) and the use of household hazardous materials such as cleaning solvents, paints, and landscape pesticides. However, these activities are not considered land uses that generate substantial TAC emissions based on review of the air toxic sources listed in BAAQMD's and CARB's guidelines. It is expected that quantities of hazardous TACs generated on-site by future residents and tenants (e.g., cleaning solvents, paints, landscape pesticides) for the types of proposed land uses would be below thresholds warranting further study under the California Accidental Release Program, which regulates stationary sources of hazardous substances used annually in quantities ranging from 500 to 20,000 pounds. In the event that future tenants utilize substantial quantities of hazardous substances, they would be subject to the requirements of the California Accidental Release Program and would be required to develop and implement a Risk Management Plan that would minimize the accidental release of hazardous substances and associated TAC emissions. Therefore, impacts related to project-sourced TAC emissions would be less than significant.

Project Exposure to TACs

The California Supreme Court in a December 2015 opinion (*BIA v. BAAQMD*) confirmed CEQA is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project; therefore, potential health impacts to new residents would not be an impact under CEQA. Nevertheless, the City has policies that address existing conditions (*e.g.*, air quality) affecting a proposed project, which are addressed below.

Local community risk and hazards are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. The City of Palo Alto Comprehensive Plan Policy N-5.4 states that all potential sources of odor and/or toxic air contaminants should be adequately buffered, or mechanically or otherwise mitigated to avoid odor and toxic impacts that violate relevant human health standards.

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is located approximately 1,300 feet from U.S. 101, the nearest freeway. Therefore, the program area is not located within 500 feet of a freeway or urban road with 100,000 vehicles per day, which does not meet CARB's recommended separation distance. The HIP expansion program contains two parcels currently used as gasoline dispensing stations at 840 San Antonio Road and 705 San Antonio Road, which are considered sources of TACs. Future development in the program area would add residential uses; therefore, new sensitive receptors in the program area may occur within 50 feet of a gasoline service station. However, future development in the program area would implement Mitigation Measure AIR-3b of the EIR for the City's 2030 Comprehensive Plan, described in the "Regulatory Setting" section, which requires best practices for air filtration recommended by the BAAQMD, would reduce impacts to less than

significant. Therefore, in order to ensure consistency with Comprehensive Plan policies N-5.4 and 5.6, which aim to reduce health risks by adequately buffering or otherwise mitigating to avoid odor and toxic impacts that violate relevant human health standards reducing the exposure of new residents on the project site to toxic air contaminants, any future project proposed under the HIP expansion would be required to comply with a condition of approval (COA) that includes provisions to reduce impacts related to TAC emissions from existing sources in and around the program area.

788 SAN ANTONIO ROAD PROJECT

The project involves the construction of 102 residences and, therefore, would place sensitive receptors on the project site. The project site is not located in an identified CARE community with known high levels of risk from TACs co-located with sensitive populations.

In its *Air Quality and Land Use Handbook: A Community Health Perspective*, CARB evaluates health risks associated with siting of sensitive receptors in proximity to known sources of TACs, including high-volume roadways and freeways, distribution centers, gasoline dispensing facilities, dry cleaners, and rail yards (CARB 2005). Specifically, CARB recommends new sensitive receptors be sited over 500 feet from a freeway, an urban road with 100,000 vehicles per day, or a rural road with 50,000 vehicles per day. San Antonio Road, adjacent to the project site, has approximately 36,000 average daily trips (ADT), while the project is located over 1,800 feet from U.S. 101, the nearest freeway. Therefore, the project site is not located within 500 feet of a freeway or urban road with 100,000 vehicles per day. As previously discussed, the project would not exacerbate existing conditions such that on-site or off-site sensitive receptors would be exposed to substantial pollutant concentrations resulting from TAC emissions along high-volume roadways. Impacts related to TAC emissions from mobile sources would be less than significant.

Additionally, the project site is approximately 475 feet south of an existing ARCO gasoline dispensing facility at 800 San Antonio Road. CARB recommends avoiding siting new sensitive receptors within 300 feet of large gasoline dispensing facilities (defined as facilities with throughputs of 3.6 million gallons per year or greater) or 50 feet of typical gasoline dispensing facilities. The project meets these recommended separation distances.

Furthermore, pursuant to the requirements of the 2019 California Energy Code (Title 24, Part 6), new residential construction is required to install Minimum Efficiency Reporting Value (MERV) 13 or equivalent filters for heating and cooling ventilation systems. MERV 13 filters have a 90 percent particle filtration efficiency, which would reduce any potential health risks at proposed residences (Singer *et al*. 2016). The project would also be subject to Mitigation Measure AIR-3b in the City's Comprehensive Plan EIR which requires best practices for air filtration recommended by the BAAQMD.

The project meets CARB's recommended separation distances from TAC sources and would be equipped with MERV 13 filters in compliance with the most recent iteration of the California Energy Code. In addition, in order to ensure consistency with Comprehensive Plan policies N-5.4 and 5.6, which aim to reduce health risks by adequately buffering or otherwise mitigating to avoid odor and toxic impacts that violate relevant human health standards reducing the exposure of new residents on the project site to toxic air contaminants, the 788 San Antonio development would be required to comply with COA that includes provisions to reduce impacts related to TAC emissions from existing sources in and around the project site.

SIGNIFICANCE CONCLUSION

The HIP expansion, including the 788 San Antonio Road project, would not introduce new stationary sources of TACs. Therefore, impacts with respect to generation of TACs or other pollutants that would expose existing sensitive receptors would be less than significant.

As noted previously, CEQA only requires analysis of the project's impacts on the environment, not the environment's impact on the project; therefore there would be no impact under CEQA with respect to health risks on future residents in the program area. However, conditions of approval would be required for any project in the HIP expansion area, including the 788 San Antonio Road project, to ensure consistency with the City's Comprehensive Plan policies. Compliance with City standard conditions of approval and the most recent iteration of the California Energy Code would address impacts on future residents, which are not subject to CEQA.

Mitigation Measures

No mitigation measures are required.

Threshold 4:	Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQ-4 PROJECTS IN THE HIP EXPANSION AREA, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD NOT INVOLVE USES THAT GENERATE SUBSTANTIAL ODORS. CONSTRUCTION ACTIVITIES, SPECIFICALLY OPERATION OF HEAVY EQUIPMENT, MAY GENERATE ODORS. HOWEVER, THIS ODOR GENERATION WOULD BE TEMPORARY IN NATURE, LIMITED TO THE DURATION OF CONSTRUCTION ACTIVITIES ON INDIVIDUAL PROJECT SITES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Table 3-3 in the BAAQMD's 2017 *CEQA Air Quality Guidelines* provides odor screening distances for land uses that have the potential to generate substantial odor complaints. The uses in the table include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2017c). Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The Palo Alto Comprehensive Plan EIR notes that residential and nonresidential development could include sources of odors, such as composting, greenwaste, and recycling operations; food processing; chemical manufacturing; and painting/coating operations, because these are permitted uses in the commercial and industrial areas in the city.

HOUSING INCENTIVE PROGRAM EXPANSION

As stated above, construction activities for projects in the program area would emit odors associated with vehicle and heavy equipment exhaust. However, these odors would be intermittent and temporary and would cease upon completion.

Development in the program area would not include, nor would locate new sensitive receptors in proximity to, odor-emitting uses identified by the BAAQMD's 2017 *CEQA Air Quality Guidelines.* Development in the program area may introduce new sources of odors as described by the Palo Alto Comprehensive Plan EIR. Development would also generate new sensitive receptors in the program area as it would potentially construct 818 residential units upon buildout. However, all projects would be subject to BAAQMD Regulation 7, Odorous Substances, which requires abatement of any

nuisance generating an odor complaint. Therefore, implementation of the HIP expansion would not substantially cause new sources of odors and would not significantly expose sensitive receptors to existing odors, and impacts would be less than significant.

788 SAN ANTONIO ROAD PROJECT

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust and during idling. However, these odors would be intermittent and temporary and would cease upon completion.

The project does not propose, nor would locate, new sensitive receptors in proximity to, odor-emitting uses as identified in BAAQMD's 2017 *CEQA Air Quality Guidelines* or the Palo Alto Comprehensive Plan EIR. The proposed residential and retail uses would not generate objectionable odors that would affect a substantial number of people. Furthermore, the project would be subject to BAAQMD Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. Therefore, the project would not substantially cause new sources of odors and would not significantly expose sensitive receptors to existing odors, and impacts would be less than significant.

SIGNIFICANCE CONCLUSION

Implementation of the HIP expansion, including the 788 San Antonio Road project, would not substantially cause new sources of odors and would not significantly expose sensitive receptors to existing odors, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

c. Cumulative Analysis

The planned and pending projects near the proposed project are listed in Table 3-1 (Section 3, *Environmental Setting*). In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a program's individual emissions would be cumulatively considerable. If a program exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary (BAAQMD 2017a). Construction of individual projects in the HIP expansion area would potentially exceed BAAQMD air quality standards, but impacts would be reduced to a less than significant level with Mitigation Measure AQ-1. Operation of projects in the HIP expansion area would not result in significant impacts to air quality. Construction and operation of the 788 San Antonio Road project would have a less than significant cumulative impact on air quality.

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4.2 Cultural Resources

This section analyzes the proposed project's potential impacts related to cultural resources including historical and archeological resources as well as human remains. The analysis in this section is based, in part, on a Historic Resource Evaluation (HRE) prepared for the 788 San Antonio Road project by Page & Turnbull in June 2020. The full analysis is provided in Appendix D of this EIR.

4.2.1 Setting

a. Regulatory Framework

State

California Environmental Quality Act

CEQA Guidelines §15064.5(a)(3) states that a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (CRHR) (Pub. Res. Code §§5024.1, Title 14 CCR, Section 4852), including the following:

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

Cultural resources meeting one or more of these criteria are defined as "historical resources" under CEQA (Office of Historic Preservation 2000). Resources included in a local register of historical resources [pursuant to Section 5020.1(k) of the Public Resources Code] or identified as significant in an historical resources survey [meeting the criteria in Section 5024.1(g) of the Public Resources Code], also are considered "historical resources" for the purposes of CEQA.

The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources, or identified in an historical resources survey, does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Codes Governing Human Remains

The disposition of human remains is governed by Section 7050.5 of the California Health and Safety Code and Sections 5097.94 and 5097.98 of the Public Resources Code and falls within the jurisdiction of the NAHC. If human remains are discovered, the County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native Americans so they can inspect the burial site and make recommendations for treatment or disposal.

City of Palo Alto

2030 Comprehensive Plan

The City's 2030 Comprehensive Plan Land use and Community Design Element includes the following goals and policies related to historic and archeological resources that apply to the project:

- **Goal L-7:** Conservation and preservation of Palo Alto's historic buildings, sites and districts.
  - **Policy L-7.1:** Encourage public and private upkeep and preservation of resources that have historic merit, including residences listed in the City's Historic Resource Inventory, the California Register of Historical Resources, or the National Register of Historic Places.
  - **Policy L-7.2:** If a proposed project would substantially affect the exterior of a potential historic resource that has not been evaluated for inclusion into the City's Historic Resources Inventory, City staff shall consider whether it is eligible for inclusion in State or federal registers prior to the issuance of a demolition or alterations permit. Minor exterior improvements that do not affect the architectural integrity of potentially historic buildings shall be exempt from consideration. Examples of minor improvements may include repair or replacement of features in kind, or other changes that do not alter character-defining features of the building.
  - **Policy L-7.15:** Protect Palo Alto's archaeological resources, including natural land formations, sacred sites, the historical landscape, historic habitats and remains of settlements here before the founding of Palo Alto in the 19th century.
  - **Policy L-7.16:** Continue to consult with tribes as required by California Government Code Section 65352.3. In doing so, use appropriate procedures to accommodate tribal concerns when a tribe has a religious prohibition against revealing precise information about the location or previous practice at a particular sacred site.
  - **Policy L-7.17:** Assess the need for archaeological surveys and mitigation plans on a project-by-project basis, consistent with the California Environmental Quality Act and the National Historic Preservation Act.
  - **Policy L-7.18:** Require project proponents to meet State codes and regulations regarding the identification and protection of archaeological and paleontological deposits, and unique geologic features.

Palo Alto Municipal Code

According to Section 16.49.040 of the City of Palo Alto Historic Preservation Ordinance, a building, structure, object or site may be designated as a Historic Landmark if it possesses sufficient character-defining features, integrity of location, design, setting, materials, workmanship, feeling or association and meets at least of the following criteria:

1. The structure or site is identified with the lives of historic people or with important events in the city, state, or nation;
2. The structure or site is particularly representative of an architectural style or way of life important to the city, state, or nation;
3. The structure or site is an example of a type of building which was once common, but is now rare;
4. The structure or site is connected with a business or use which was once common, but is now rare;

5. The architect or building was important; or
6. The structure of site contains elements demonstrating outstanding attention to architectural design, detail, materials, or craftsmanship.

In addition to the criteria for designation, the definitions of historic categories and districts, as defined in the ordinance, shall be used for designation of properties to the inventory. The definitions are as follows:

- Category 1: An "Exceptional Building" of pre-eminent national or State importance. These buildings are meritorious works of the best architects, outstanding examples of a specific architectural style, or illustrate stylistic development of architecture in the United States. These buildings have had either no exterior modifications or such minor ones that the overall appearance of the building is in its original character.
- Category 2: A "Major Building" of regional importance. These buildings are meritorious works of the best architects, outstanding examples of an architectural style, or illustrate stylistic development of architecture in the State or region. A major building may have some exterior modifications, but the original character is retained.
- Category 3 or 4: A "Contributing Building" which is a good local example of an architectural style and relates to the character of a neighborhood grouping in scale, materials, proportion, or other factors. A contributing building may have had extensive or permanent changes made to the original design, such as inappropriate additions, extensive removal of architectural details, or wooden facades resurfaced in asbestos or stucco.

b. Cultural Resources Setting

Natural Environment

The Bay Area and the surrounding region contain an abundance of natural resources, which prehistoric and early historic-period people utilized. Deer, elk, and waterfowl were plentiful in prehistory, as were marine and Bay resources such as seals, otters, abalone, mussels, oysters, clams and numerous fish species. Franciscan chert was an easily obtainable local raw material used for stone tools. Obsidian, another material used in tool making, could be obtained from the Anadel and Napa Glass Mountain quarries north of the Bay Area (City of Palo Alto 2016a).

Archaeological Setting

The area that now contains the city of Palo Alto is known to have been inhabited by indigenous peoples for thousands of years prior to the arrival of Europeans. Archaeological excavation of the banks of San Francisquito Creek indicated that the area around Palo Alto was inhabited as far back as 2400 BC, during the late Archaic period. Additionally, carbon dating of a human skull belonging to Stanford Man I places humans in the area approximately 3,130 years ago. During the late Archaic period, prehistoric peoples lived widely throughout the region in small groups.

With more than 50 archaeological surveys conducted in Palo Alto, several prehistoric sites with shell midden components, including human burials, have been found, particularly in the flatland areas of the city. There is still the potential that additional undiscovered archeological resources exist in the city. Areas categorized as extremely sensitive can generally be found in riparian areas surrounding Adobe and San Francisquito Creeks as well scattered urbanized sites distributed throughout the city. Site-specific mapping of known resources is prohibited by CEQA Guidelines §15120(d). The project

site is located in an area historically occupied by the Ohlone peoples, who originated in present day eastern Contra Costa County, settled in the Palo Alto region around 1500 B.C., replacing the groups that had settled there earlier. The Ohlone or Costanoan peoples would continue to settle in this area up to historical times. The Ohlone peoples are a group defined by commonalities in their language, though the group is made up of several autonomous tribes that spoke eight distinct but related languages. Together with the related Miwok, a Native American group that ranged from present day Oregon to California, the Ohlone languages comprise the Utian language family, which is in turn part of a larger group of related languages among tribes originally from present day California and Oregon. The Ohlone peoples were hunter-gathers who relied heavily on plants, seeds, berries, roots, birds, and seafood, including shellfish. They developed bows and arrows, tobacco pipes, intensive acorn use, and increasingly complicated exchange systems. The territory of the Ohlone people ranged from the San Francisco Bay Area, south to Carmel and approximately 60 miles inland. This territory included miles of coastline and several inland valleys. As noted above, the Ohlone people were organized politically by tribes, each of which had a designated territory. Tribes consisted of villages and camps, designated by features of the environment. The title of chief of the tribe was inherited patrilineally and could be held by both men and women. As the chief, responsibilities included directing hunting, fishing, and gathering expeditions, as well as hosting visitors and directing ceremonial activities (City of Palo Alto 2016a).

Historical Setting

Post-European contact history for California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present). The Spanish Period brought the establishment of the California mission system, while the Mexican Period is largely known for the division of the land of California into private land holdings. Following the Mexican-American war, the United States purchased California from Mexico; population of the state subsequently increased, particularly during the Gold Rush.

European contact in the Palo Alto region began in 1769 with the visit of Don Gaspar de Portola to San Francisco Bay. His group camped at a location they called El Palo Alto, for a tall tree located in present day Palo Alto. In 1776, Juan Bautista DeAnza established Mission Dolores and the Presidio of San Francisco, and soon after this, the colonization of the San Francisco Peninsula by the Spanish began. As elsewhere, induction into the missions had a devastating effect on the local inhabitants, requiring them to live and work at the mission and abandon their former lifeways. By 1821, four presidios and 21 missions were established in Spanish California. The trail between missions became known as El Camino Real, which today spans through the present day City of Palo Alto.

Spanish architectural styles, which arrived in California via Mexico, can be seen in the city of Palo Alto today, including the Spanish Colonial and Early California styles present in the Ramona Street Architectural District. Later, James Marshall's discovery of gold on the American River would lead to the gold rush. The lure of wealth from gold prospecting brought the parents of Palo Alto's founder, Timothy Hopkins, to Northern California (City of Palo Alto 2016a).

The earliest township within the current boundaries of Palo Alto was called Mayfield. In 1882, railroad magnate and California politician, Leland Stanford, purchased 1,000 acres adjacent to Mayfield to add to his large estate in northwestern Santa Clara County. Stanford decided in 1894 to establish the town of Palo Alto with help from his friend Timothy Hopkins of the Southern Pacific Railroad.

Throughout Palo Alto's early decades of growth as a town, the lands surrounding the project site remained a largely agricultural stretch between the city and the small settlement growing around

the transportation stop at Mountain View to the southeast. Until the early 1950s, the area surrounding the location of the project site was dominated by large agricultural tracts with low-density settlement. The building at 788 San Antonio Road was constructed within tract No. 219 of the "Peninsula Garden Farms," a subdivision that was marketed as early as the mid-1920s for buyers seeking one- to two-acre lots where they could raise market gardens, poultry, or rabbits.

The building at 788 San Antonio Road was among the earliest commercial buildings constructed along this portion of San Antonio Road and was completed in 1953. However, the earliest directory listing for the address was published in 1955. By the mid-1950s, the area between Charleston Road to the north and Middlefield Road to the south had changed drastically, with residential subdivisions and commercial thoroughfares taking the place of the open fields of only a decade earlier.

In 1953, the California Chrysanthemum Growers Association (CCGA) purchased the lot surrounding the 788 San Antonio Road property for $3,100 and began constructing their new headquarters. The CCGA was founded in 1932 by Japanese American flower growers in response to the pressures faced by growers after the onset of the Great Depression. By 1958, the association required additional space to serve its members and expanded the rear of the building. In 1967, the CCGA built the commercial and warehouse building at 796 San Antonio Road, intended to be used partly for their own storage needs as well as to rent to tenant businesses. Continuing to operate at its headquarters on San Antonio Road, the CCGA became a stock company in 1973 and amended its by-laws to extend membership to flower growers whose primary focus was not only chrysanthemums. The CCGA listed 788 San Antonio Road as its primary address until at least the 1990s (Page & Turnbull 2020, Appendix D).

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds

If a project may cause a substantial adverse change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the CRHR or a local register, either through demolition, destruction, relocation, alteration, or other means, then the project would have a significant effect on the environment (CEQA Guidelines §15064.5[b]). Impacts would be significant if the project would:

1. Cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5
3. Disturb any human remains, including those interred outside of formal cemeteries

As discussed in Section 5, *Cultural Resources,* of the Initial Study (Appendix B), impacts related to thresholds 2 and 3 were found to be less than significant or less than significant with mitigation. An analysis of threshold 1 is therefore included in this section. The mitigation measures included in the Initial Study are shown in Table ES-1 in the Executive Summary and will be carried forward into the Mitigation Monitoring and Reporting Program for the project.

Direct impacts can be assessed by identifying the types and locations of proposed development, determining the exact locations of cultural resources within the project area, assessing the significance of the resources that may be affected, and determining the appropriate mitigation.

Removal, demolition, or alteration of historical resources can permanently impact the historic fabric of an archaeological site, structure, or historic district.

The State Legislature, in enacting the CRHR, amended CEQA to clarify which properties are significant, as well as which project impacts are considered to be significantly adverse. A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have significant effect on the environment (CEQA Guidelines §150645[b]). A substantial adverse change in the significance of a historical resource means demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines §150645[b][1]).

The CEQA Guidelines further state that "[t]he significance of an historical resource is materially impaired when a project… [d]emolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in the California Register … local register of historic resources… or its identification in an historic resources survey." As such, the test for determining whether or not the project will have a significant impact on identified historic resources is whether it will materially impair physical integrity of the historic resource such that it could no longer be listed in the CRHR or a local landmark program.

b. Project Impacts and Mitigation

Threshold 1:	Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Impact CUL-1 **THE PROJECT WOULD RESULT IN DEMOLITION AND REMOVAL OF TWO EXISTING SINGLE-STORY COMMERCIAL BUILDINGS AT 788 AND 790-796 SAN ANTONIO ROAD. DUE TO ITS RETAINED INTEGRITY, ONE EXISTING STRUCTURE AT 788 SAN ANTONIO ROAD MAY BE ELIGIBLE FOR INDIVIDUAL LISTING IN THE CRHR AND CONSTITUTES A HISTORICAL RESOURCE FOR THE PURPOSES OF CEQA. THE HIP EXPANSION DOES NOT PROPOSE DEMOLITION OF OTHER STRUCTURES ELIGIBLE FOR LISTING ON THE CITY'S HISTORIC INVENTORY OR CRHR; FURTHER ANALYSIS WOULD BE REQUIRED TO DETERMINE IF SUCH ELIGIBLE RESOURCES ARE PRESENT IN THE PROGRAM AREA. IMPACTS TO HISTORIC RESOURCES WOULD BE SIGNIFICANT AND UNAVOIDABLE AS THE PROJECT INVOLVES DEMOLITION OF ONE KNOWN ELIGIBLE HISTORICAL RESOURCE.**

Housing Incentive Program Expansion

According to Figure 4.4-1 of the Draft EIR for the City's 2030 Comprehensive Plan, no known federally or state designated historic properties or districts are located in or adjacent to the program area. Nonetheless, development authorized under the HIP expansion could cause a significant impact on an historic resource that has not yet been identified or recorded through:

- Demolition of an historic resource;
- Appropriately modifying an historic resource in a manner which alters the character-defining features; or
- Permitting inappropriate new construction which could introduce incompatible new buildings that clash with an established architectural context.

The program area is generally characterized by mid-twentieth century commercial buildings lining San Antonio Road. Appropriate to the "service commercial" zoning of the area, these businesses are

primarily oriented toward customers traveling by automobile, and thus provide on-site parking accessed by driveways from the main thoroughfare. There is a mix of automotive service providers, private office complexes, and health- and activity-focused businesses (Page & Turnbull 2020). The construction date and use associated with development in the program area is shown on Table 4.2-1.

Table 4.2-1 Construction Dates for Parcels within the Program Area

Address	APN	Date of Construction of Existing Buildings	Existing Use
840 San Antonio	147-03-064	1962	Service Station
910 E. Charleston	147-03-065	1978	Fast food drive-thru
824 San Antonio	147-03-040	1986	Car Rental
816 San Antonio	147-03-039	1956	Car Rental
808 - 814 San Antonio	147-03-043	1956	Day Spa
800 San Antonio	147-03-038	1960	Tutoring
796 San Antonio	147-03-042	1967	Martial Arts
788 – 790 San Antonio	147-03-041	1953	Contractor
780 San Antonio	147-05-092	1988	Oil Change
762 San Antonio	147-05-102	1989	Truck sales
760 San Antonio	147-05-091	1975	Office equipment repair
744 - 750 San Antonio	147-05-089, 147-05-088	1952 and 1980	Hotel
720 San Antonio	147-05-087	1965	Light manufacturing
708 - 710 San Antonio	147-05-090	1956	Automobile repair
705 San Antonio	127-15-045	1981	Service Station
4201 Middlefield	147-05-086	1992	Oil Change
4227 Middlefield	147-05-068	1955	Office Supply
4233 Middlefield	147-05-069	2010	Bicycle Shop

Generally, structures over 45 years in age could be considered “of age” to be potential historical resources and should be evaluated to determine historical significance. In the program area, 11 structures are over 45 years in age (built before 1975), including the building at 788 San Antonio Road, which is described in depth in the impact analysis below.

Although no existing structures within the program area are listed on the City’s Historic Inventory, the CRHR, or the NRHR, there is a potential for eligible historical resources to be present in the program area. Therefore, development within the program area could result in a significant impact to a historical resource. At this time, demolition of existing structures within the program area other than demolition associated with the 788 San Antonio Road development (discussed below) is not proposed. Therefore, it would be speculative to assume that there are other eligible resources in the program area and that they would be demolished. Nonetheless, this impact is potentially significant and mitigation is required.

788 San Antonio Road Mixed-Use Project

The project site encompasses two parcels located at 788 San Antonio Road and 790-796 San Antonio Road in the City of Palo Alto. The project site is currently developed with two buildings and surface parking lots. One existing building at 788 San Antonio Road is used by a concrete and construction company and the other at 790-796 San Antonio Road is used by a storage company and martial arts and fitness studio. The property at 788 San Antonio Road is currently owned by the CCGA and includes a concrete masonry unit commercial building, as well as a portion of the neighboring building to the northeast at 796 Antonio Road.

Both properties were evaluated by Page & Turnbull in an HRE to determine if they are individually eligible for listing in the CRHR. The HRE provides a summary of the current historic status, a building description, and historic context for the building at 788 San Antonio Road. The report includes an evaluation of the property's individual eligibility for listing in the CRHR. Page & Turnbull prepared the HRE using information collected during a site visit on January 31, 2019, research collected at local repositories, including the Palo Alto Development Service and Palo Alto Historical Association, as well as the San Francisco Public Library and various online sources including Ancestry.com, the California Digital Newspaper Collection, and the Online Archive of California. Key primary sources consulted and cited in this report include Palo Alto building permit applications, city and county directories, and historical newspapers.

Page & Turnbull completed California Department of Parks and Recreation (DPR) 523 Series forms for the building at 788 San Antonio Road and also the building at 796 San Antonio Boulevard (which includes the address number 790 San Antonio Road). These DPR forms are also included in Appendix D. The purpose of this work was to determine whether either building appeared to be eligible for inclusion in the CRHR and whether either is a historical resource as defined by CEQA. The results of the HRE and DPR forms are summarized below.

788 San Antonio Road

The building at 788 San Antonio Road was constructed in 1953 for the CCGA by Mountain View-based building contractor, Don Gordon. At the time of construction, 788 San Antonio Road had two 10-foot by 10-foot overhead doors, six three-foot by six-foot steel sash windows, and four four-foot by four-foot steel sash windows. The 50-foot wide building was originally 72 feet deep, and a rear 52-foot addition, with a third utility door on the south façade, was built in 1958. A 1965 aerial photograph shows the building with its current configuration, including the original front gabled portion and the 1958 rear warehouse extension. The most visible change recorded in the permit history for the building include the replacement of the original front door with the current anodized aluminum-frame door and sidelight with tinted glazing in 1974 and reroofing which replaced wood shakes with composition shingle roofing in 2013. Through the majority of the years since its construction, the building at 788 San Antonio Road was owned and used by the CCGA. In 2003, use of the building transferred to Mechanica Automotive Services, which operated at the location until 2018.

As discussed in the HRE, the building at 788 San Antonio Road is not currently listed in the National Register of Historic Places or the CRHR. The property is also not currently listed on the City of Palo Alto Historic Inventory and is not located within a registered historic district. Page & Turnbull evaluated the building for listing in the CRHR and concluded that it is individually eligible for listing in the CRHR under Criterion 1 (Events) for its association with the CCGA. This cooperative floriculture group provided Japanese American growers on the San Francisco Peninsula with shared

access to growing technologies, shipping options, and stabilized markets from its founding in 1932 to the end of the twentieth century. Though 788 San Antonio Road was not the first headquarters of the organization, it served as the longest center of operations for the CCGA and stands as a testament to the group's ability to rebuild their businesses following the disruption of Japanese American internment during the Second World War. Japanese American residents of Palo Alto are discussed in Dames and Moore's 2001 survey update primarily in relation to their local church and temple congregations and residential settlement patterns. The CCGA's headquarters at 788 San Antonio Road connects to a different and important economic and social theme in the twentieth-century development of the Japanese American community of the San Francisco Peninsula. The period of significance for this association is 1953-2002, beginning with construction of the building and ending with the merger of the CCGA with the California Flower Market.

As a property that is eligible for the CRHR, the building at 788 San Antonio Road is considered a historical resource under CEQA pursuant to CEQA Guidelines §15064.5. The physical features which convey the reasons for its significance are identified in the HRE as:

- Rectangular, one-story massing, including original building and 1958 eastern extension;
- Side- and cross-gabled roof element at west building façade;
- Concrete masonry unit construction;
- Multi-light steel-frame windows on north, west, and south façades;
- Vehicle utility openings on south façade;
- Wood-plank shelves below windows on west façade.

The proposed project would result in demolition of the building at 788 San Antonio Road. This project action would materially impair the building as it would result in the demolition of physical characteristics which convey its historical significance and that justify its inclusion in the CRHR. Therefore, the proposed demolition of this historic resource is a potentially significant impact as defined by CEQA Guidelines §15064.5.

790-796 San Antonio Road

The building at 790-796 San Antonio Road was constructed by the CCGA in 1967. According to the DPR 523 Series form prepared by Page & Turnbull, the building was constructed to provide rental income to support the association's operating costs. The CCGA occupied the southern portion of the building at 790 San Antonioni Road until about 1980. The northern portion of the building at 796 San Antonio Road was occupied by Electrical Materials, Inc., an industrial electrical equipment distributor. Since this time, the building has been occupied by various tenants.

Page & Turnbull found the building ineligible for listing in the CRHR under any designation criteria. Although the building was built and managed by the CCGA, it was built three decades after the group's founding and was not the center of its activities. The building does not appear to have a significant association with the CCGA or with any other events in the history of the city, region, state, or nation (Criterion 1). Research did not identify the building was associated with important persons (Criterion 2). The building also lacks architectural distinction and is not representative of a significant architectural style (Criterion 3). Lastly, the building does not appear to possess the potential to provide important information relating to prehistory or history (Criterion 4). As a property that is ineligible for the CRHR, 790-796 San Antonio Road is not considered a historical resource and its demolition would not result in a significant impact pursuant to CEQA Guidelines

§15064.5. Impacts associated with demolition of this building would be less than significant under CEQA.

Mitigation Measures

Mitigation measures CUL-1 and CUL-2 are required for future projects under the HIP in the program area. Because the 788 San Antonio Road project has already prepared an HRE in accordance with Mitigation Measure CUL-1 and because it involves demolition of an eligible resource, only mitigation measures CUL-3 and CUL-4 apply to redevelopment of the 788 San Antonio site.

CUL-1 Historic Resource Evaluation

For future projects in the program area that would involve demolition or modification of structures over 45 years in age, a Historic Resources Evaluation (HRE) shall be prepared by a qualified professional to determine the structure's eligibility for listing on the local or state historic registers. The report shall be submitted to the Planning Director and will be utilized by staff in their evaluation of the project and CEQA review. If the structure is determined to be eligible for listing on the local or state register, Mitigation Measure CUL-2 shall be implemented.

CUL-2 Rehabilitation and Restoration

For future projects in the program area that involve modification of structures determined to be eligible for listing on the City's historic inventory or CRHR, prior to submittal for building permits, a qualified historic preservation architect shall review the plans for the modifications to verify that the work is in keeping with applicable Secretary of the Interior's Standards for Rehabilitation, such that the original materials and character-defining features will be retained and rehabilitated. The final design and materials associated with building modifications shall be reviewed and approved by the Director and the Historic Preservation Planner of the City of Palo Alto Planning and Community Environment Department.

CUL-3 Historic Documentation Package

Prior to issuance of demolition permits for the 788 San Antonio Road Mixed-Use Project, the applicant shall undertake Historic American Building Survey (HABS) documentation of the structure including its character defining features. The documentation should generally follow the HABS Level III requirements and include measured drawings that depict the size, scale, and dimensions of the subject property; digital photographic recordation of the interior and exterior of the subject property including all character-defining-features; a detailed historic narrative report; and compilation of historic research. The documentation shall be undertaken by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate), as set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR, Part 61). The original archival-quality documentation shall be offered as donated material to the City of Palo Alto Historic Inventory where it would be available for current and future generations. Archival copies of the documentation also shall be submitted to the City of Palo Alto Library where it would be available to local researchers. Completion of this mitigation measure shall be monitored and enforced by the City.

CUL-4 Interpretive Website

Prior to issuance of demolition permits for the 788 San Antonio Road Mixed-Use Project, the applicant shall develop an online interpretive website that displays materials concerning the history

and architectural features of the property. Interpretation of the site's history shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards and may engage additional consultants to develop the display. The interpretative website, which may include, but are not limited to, a display of photographs, news articles, memorabilia, and/or video. The site shall be overseen by Palo Alto Historic Association, a similar non-profit, or the City of Palo Alto at the applicant's expense. The content of the site shall be approved by the Director of Planning & Development Services or designee.

Significance After Mitigation

If a future project under the HIP expansion proposes to materially alter a structure within the program area, implementation of Mitigation Measure CUL-1 would allow the City to determine if the structure is eligible for listing in a local, state, or national register. If a structure proposed for alteration is found to be eligible for any one of these registers, Mitigation Measure CUL-2 would be required. Mitigation Measure CUL-2 would reduce impacts associated with modification or alteration of existing eligible resources by ensuring compliance with the standards for rehabilitation of historic structures. Because future demolition of potentially eligible historical structures is speculative, further analysis is not required at this time, but would be required as part of any future development application under the HIP expansion once project-level information is available.

Because one of the existing structures located at 788 San Antonio Road is already known to be eligible for listing in the California Register of Historic Resources, the 788 San Antonio Road project is required to implement mitigation measures CUL-2 and CUL-3, which would reduce significant direct impacts to the eligible historic resource to the extent feasible. Despite the implementation of these mitigation measures for the 788 San Antonio Road development, which include historic and photographic documentation and an interpretive website, the historic resource would be demolished and the impact to the 788 San Antonio Road property would not be reduced to less-than-significant levels under CEQA. Demolition by its nature is complete and total material impairment of the historical resource, and no feasible mitigation measures are available to mitigate the demolition of the CEQA historical resources to a less-than-significant level. As a result, demolition of an individually eligible resource, as proposed by the 788 San Antonio Road Project, would be a significant and unavoidable adverse impact.

c. Cumulative Impacts

In terms of historical resources, the analysis of cumulative impacts relates to whether impacts of the project and future related projects, considered together, might substantially impact and/or diminish the number of similar historical resources, in terms of context or property type. None of the projects listed in Table 3-1 involve adverse impacts to historical resources. Although required implementation of the Mitigation Measure CUL-1 through CUL-4 as identified in this section would reduce impacts to the extent feasible, impacts to historical resources would remain significant and unavoidable because the project involves demolition of an eligible historical resource. Nonetheless, the program area is not within a historic district. Therefore, individual projects that involve the demolition of historic structures would not affect a historic district on the whole. Overall, although the project may involve impacts to individual historic resources, there would no cumulative impact to similar historical resources in the region and the project would have a less than significant cumulative impact.

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4.3 Energy

This section analyzes the energy impacts of development and operation of future development under the HIP expansion and the 788 San Antonio Road project. To assure that project decisions consider energy implications, CEQA requires that Environmental Impact Reports (EIRs) include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

4.3.1 Setting

Energy relates directly to environmental quality. Energy use can adversely affect air quality and can generate greenhouse gas (GHG) emissions that contribute to climate change. Fossil fuels are burned to power vehicles, to generate electricity for powering residences and commercial/industrial buildings, and to heat and cool building spaces. Transportation energy use is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes such as auto, carpool, and public transit; and miles traveled by these modes. Construction and routine operation and maintenance of transportation infrastructure also consume energy.

a. Energy Production

The two largest sources of energy produced in California in 2017 were renewable energy sources, at approximately 1,085.5 trillion British thermal units (Btu), and crude oil, at approximately 996.4 trillion Btu. In 2018, about 34 percent of the electricity used to serve California was produced from renewable resources, including geothermal, solar, wind, biomass, and hydroelectric energy generation (California Energy Commission [CEC] 2019a). Other sources of energy produced in California include nuclear electric power, natural gas, and biofuels (United States Energy Information Administration [USEIA] 2018a). California ranked second in the nation in conventional hydroelectric generation and first as a producer of electricity from solar, geothermal, and biomass resources (USEIA 2018b).

In 2018, California's in-state electric generation totaled 194,727 gigawatt-hours (GWh). Primary fuel sources for the State's electricity generation in 2018 included natural gas (51.7 percent), large hydro (15.3 percent), solar polar voltaic (PV) (13.3 percent), wind (7.5 percent), geothermal (3.4 percent), nuclear (3.0 percent), small hydro (2.2 percent), biomass (1.6 percent), solar thermal (1.6 percent), coal (<1 percent), petroleum coke (<1 percent), waste heat (<1 percent), and oil (<1 percent). In-state electricity generation capacity reached 80,304 megawatts (MW) in 2018 (CEC 2019b).

Natural gas continues to play an important and varied role in California. The State's net natural gas production for 2019 was 162,733 million cubic feet (USEIA 2019a). Nearly 45 percent of the natural gas burned in California was used for electricity generation, and much of the remainder consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors (CEC 2019c).

California is one of the top producers of petroleum in the nation, with drilling operations occurring throughout the state, but primarily concentrated in Kern and Los Angeles counties. A network of crude oil pipelines connects production areas to oil refineries in the Los Angeles area, the San Francisco Bay area, and the Central Valley. California oil refineries also process Alaskan and foreign crude oil received in ports in Los Angeles, Long Beach, and the San Francisco Bay area. Crude oil production in California and Alaska is in decline, and California refineries have become increasingly

dependent on foreign imports (CEC 2019d). Crude oil was used as transportation fuel primarily, with a portion used in industrial processes.

California's 2018 Integrated Energy Policy Report

Every two years, the CEC prepares the Integrated Energy Policy Report (IEPR). The 2018 update to the IEPR highlighted the implementation of California's innovative policies and the role the State played in establishing a clean energy economy. Volume II of the 2018 IEPR, referred to herein as the 2018 IEPR Update, was adopted in February 2019 and encompasses new analyses, as well as opportunities for public participation. According to the 2018 IEPR Update, California's electric grid relies increasingly on clean sources of energy such as solar, wind, geothermal, hydroelectricity, and biomass. As this transition advances, the grid is also expanding to serve new sectors including electric vehicles, rail, and space and water heating. California has installed more renewable energy than any other state in the United States with over 30,000 MW of utility-scale systems operational. California's Renewables Portfolio Standard (RPS) establishes increasing renewable energy procurement requirements for electricity utilities and other load-serving entities. The 2018 IEPR Update highlights the renewable portfolio (RPS) targets of 33 percent renewable energy sources by 2020 and 100 percent carbon-free energy sources by 2045, as established by SB 100 (CEC 2019e).

2018 California Gas Report

The 2018 California Gas Report presents a comprehensive outlook for natural gas requirements and supplies for California through the year 2035. The report is prepared in even-numbered years, followed by a supplemental report in odd-numbered years, in compliance with California Public Utilities Commission (CPUC) Decision D.95-01-039. The projections contained in the California Gas Report are for long-term planning and do not necessarily reflect the day-to-day operational plans of the utilities (California Gas and Electric Utilities [CGEU] 2018).

California natural gas demand, including volumes not served by utility systems, is expected to decrease at a rate of 0.5 percent per year from 2018 to 2035. The forecasted decline is due to a combination of moderate growth in the Natural Gas Vehicle market and across-the-board declines in all other market segments: residential, commercial, electric generation, and industrial markets (CGEU 2018).

Residential gas demand is expected to decrease at an annual average rate of 1.4 percent. Demand in the commercial and industrial markets is expected to increase slightly at an annual rate of 0.2 percent. Stricter codes and standards coupled with more aggressive energy efficiency programs and new goals laid out in Senate Bill (SB) 350, discussed further under *Regulatory Setting*, are making a significant impact on the forecasted load for the residential, commercial, and industrial markets (CGEU 2018).

For the purposes of load-following as well as backstopping intermittent renewable resource generation, gas-fired generation will continue to be the primary technology to meet the ever-growing demand for electric power; however, overall gas demand for electric generation is expected to decline at 1.4 percent per year for the next 17 years due to more efficient power plants, statewide efforts to minimize GHG emissions through aggressive programs pursuing demand-side reductions, and the acquisition of preferred power generation resources that produce little or no carbon emissions. California's existing gas supply portfolio is regionally diverse and includes supplies from California onshore and offshore sources, Southwestern United States supply sources, the Rocky Mountains, and Canada (CGEU 2018).

b. Energy Demand

Electricity

In 2018, California used 285,488 gigawatt-hours (GWh) of electricity, of which 31 percent were from renewable resources. In recent years, electricity demand has been flat or slightly declining as energy efficiency programs have resulted in end-use energy savings and as customers install behind-the-meter (BTM) residential solar PV systems that directly displaces utility-supplied generation. In 2018, BTM residential solar generation was estimated to be 13,582 GWh, a 20 percent increase from 2017. The strong growth in residential solar has had a measurable impact on utility served load and, consequently, on the total system electric generation summary (CEC 2019b).

City of Palo Alto

Palo Alto is the only city in California that owns and operates full-scale municipal utility services, including electric, fiber optics, natural gas, water and wastewater. The City of Palo Alto Utilities Department (CPAU) supplies electricity to city residents, facilities, and businesses. CPAU has contracted for the construction of 13 new renewable energy generation facilities in California: five landfill gas, six solar, and two wind. These facilities allow CPAU to meet over 50 percent of Palo Alto's electricity demand with renewable energy sources. During a year of normal or high rainfall, CPAU's long-term contracts for carbon free hydroelectric power also meet at least 50 percent of electricity demand (CPAU 2019). Table 4.3-1 shows the electricity consumption by sector and total for CPAU.

Table 4.3-1 Electricity Consumption in 2018 for the CPAU Service Area

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
1.9	560.5	24.9	150.2	9.9	140.6	2.1	890.1

Notes: Usage expressed in GWh
Source: CEC 2019f

With a population of 69,395 in 2018 (DOF 2019), Palo Alto's 2018 per capita electricity consumption was approximately 0.0128 GWh, or 12,800 kWh. As shown in Table 4.3-2, Palo Alto's per capita electricity consumption was approximately 43.68 million Btu in 2018.

Table 4.3-2 2018 Annual Electricity Consumption

Energy Type	Palo Alto (kWh)	County Per Capita Consumption (kWh)	County Per Capita Consumption (MMBtu)
Electricity (MWh)	8,900,000,000	12,800	43.68

Source: CEC 2019f

Natural Gas

In 2017, Palo Alto began offsetting the GHG emissions caused by natural gas use through the purchase of carbon offsets and became the first 100 percent carbon neutral utility in the world (CPAU 2019). Although the proposed project would only affect a small area in the city of Palo Alto,

the smallest scale to which natural gas consumption information is available is at the county level. Therefore, natural gas consumption in Santa Clara County is used herein to characterize the City's existing natural gas consumption. According to the CEC, Santa Clara County consumed approximately 440 million U.S. Therms (439.92 MMBtus) of natural gas in 2018 (CEC 2019g). With a population of 1,954,286 in 2019 (DOF 2019), Santa Clara County's 2018 per capita natural gas consumption was approximately 225.2 U.S. Therms. As shown in Table 4.3-3, Santa Clara County's per capita natural gas consumption in 2018 was approximately 22.5 million Btu.

Table 4.3-3 2018 Annual Natural Gas Consumption

Energy Type	Santa Clara County (U.S. Therms)	County Per Capita Consumption (U.S. Therms)	County Per Capita Consumption (MMBtu)
Natural Gas	440,030,822	225.2	22.5

Notes: Natural gas consumption volumes are expressed in U.S Therms while County per capita consumption is expressed in U.S. Therms and millions of Btu (MMBtu).

Source: CEC 2019g

Petroleum Energy

In 2017, approximately 40 percent of the state's energy consumption was used for transportation activities (USEIA 2018a). Though California's population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030, a 20 to 22 percent reduction. This decline comes in response to both increasing use of electric vehicles (EVs) and higher fuel economy for new gasoline vehicles (CEC 2018). California consumed 576.9 trillion Btu of petroleum energy in 2017, approximately 15.7 percent of total energy consumed in the state (USEIA 2018c).

Petroleum fuels are generally purchased by individual users such as residents and employees. While no petroleum refineries are located in the City limits, nine gasoline stations are present in the City limits (National Pipeline Mapping System [NPMS] 2019).

Although the proposed project would only affect a small area in the City of Palo Alto, the smallest scale to which petroleum consumption information is available is at the county level. Santa Clara County fuel sales are used herein to provide a regional context for fuel consumption in Palo Alto and the surrounding area. The most recent data for County fuel consumption are further illustrated in Table 4.3-4. As shown therein, in 2018 Santa Clara County consumed an estimated 643 million gallons of gasoline and 48 million gallons of diesel fuel (CEC 2019h). As Santa Clara County had a 2018 population of 1,947,798 (DOF 2019), the County's annual per capita fuel consumption in 2018 consisted of 330 gallons of gasoline and 24.6 gallons of diesel fuel. As shown in Table 4.3-4, each person in Santa Clara County consumed approximately 39.3 million Btu in transportation fuel in 2018.

Table 4.3-4 2018 Annual Gasoline and Diesel Consumption

Fuel Type	Santa Clara County	County Per Capita Consumption (gallons)	County Per Capita Consumption (MMBtu)[1]
Gasoline	643,000,000	330.1	36.2
Diesel	48,000,000	24.6	3.1
Total	691,000,000	354.8	39.3

[1]CaRFG CA-GREET 3.0 fuel specification of 109,772 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above. Low-sulfur Diesel CA-GREET 3.0 fuel specification of 127,460 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above (CARB 2018).

Notes: Diesel and gasoline volumes are expressed in gallons while Btu volumes are expressed in millions of Btu (MMBtu).

Source: CEC 2019h

Alternative Fuels

A variety of alternative fuels are used to reduce petroleum-based fuel demand. The use of these fuels is encouraged through various statewide regulations and plans, such as the Low Carbon Fuel Standard and Senate Bill 32. Conventional gasoline and diesel may be replaced, depending on the capability of the vehicle with transportation fuels including the following:

Hydrogen

Hydrogen is being explored for use in combustion engines and fuel cell electric vehicles. The interest in hydrogen as an alternative transportation fuel stems from its clean-burning qualities, its potential for domestic production, and the fuel cell vehicle's potential for high efficiency, which is two to three times more efficient than gasoline vehicles. Currently, 38 hydrogen refueling stations are located in California; one station is located in Palo Alto, at 3601 El Camino Real (California Fuel Cell Partnership 2019).

Biodiesel

Biodiesel is a renewable alternative fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is biodegradable and cleaner-burning than petroleum-based diesel fuel. Biodiesel can run in any diesel engine generally without alterations; however, fueling stations have been slow to make it available. There are currently 11 biodiesel refueling stations in California, none of which is located in Palo Alto [U.S. Department of Energy (DOE) 2019].

Electric Vehicles

Electricity can be used to power electric and plug-in hybrid EVs directly from the power grid. Electricity used to power vehicles is generally provided by the electricity grid and stored in the vehicle's batteries. Fuel cells are being explored as a way to use electricity generated onboard the vehicle to power electric motors. There are 62 electrical charging stations in Palo Alto, located at various locations throughout the city (DOE 2019b).

c. Regulatory Setting

Federal Regulations

Energy Independence and Security Act of 2007

The Energy Independence and Security Act, enacted by Congress in 2007, is designed to improve vehicle fuel economy and help reduce U.S. dependence on foreign oil. It expands the production of renewable fuels, reducing dependence on oil, and confronting global climate change. Specifically, it does the following:

- Increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard, requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels
- Reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020 – an increase in fuel economy standards of 40 percent

Energy Policy and Conservation Act

Enacted in 1975, this legislation established fuel economy standards for new light-duty vehicles sold in the U.S. The law placed responsibility on the National Highway Traffic and Safety Administration, a part of the U.S. Department of Transportation, for establishing and regularly updating vehicle standards. The United States Environmental Protection Agency (USEPA) administers the Corporate Average Fuel Economy program, which determines vehicle manufacturers' compliance with existing fuel economy standards. Since the inception of the Corporate Average Fuel Economy program, the average fuel economy for new light-duty vehicles steadily increased from 13.1 miles per gallon for the 1975 model year to 30.7 miles per gallon for the 2014 model year and is proposed to increase to 54.5 by 2025. Light-duty vehicles include autos, pickups, vans, and sport-utility vehicles.

Energy Star Program

In 1992, the USEPA introduced Energy Star as a voluntary labeling program designed to identify and promote energy-efficient products to reduce GHG emissions. The program applies to major household appliances, lighting, computers, and building components such as windows, doors, roofs, and heating and cooling systems. Under this program, appliances that meet specification for maximum energy use established under the program are certified to display the Energy Star label. In 1996, the USEPA joined with the Energy Department to expand the program, which now also includes qualifying commercial and industrial buildings, and homes.

State

California Energy Plan

The CEC is responsible for preparing the California Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The 2008 California Energy Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure

needs; and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the CEC and CARB prepared and adopted in 2003 a joint agency report, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. One of the performance-based goals of AB 2076 is to reduce petroleum demand to 15 percent below 2003 demand. Furthermore, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, the Governor directed the CEC to take the lead in developing a long-term plan to increase alternative fuel use.

Integrated Energy Policy Report

SB 1389 (Chapter 568, Statutes of 2002) required the CEC to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The CEC uses these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The most recent assessment, the *2018 Integrated Energy Policy Report*, contains two volumes. Volume I highlights the implementation of California's innovative policies and the role they have played in establishing a clean energy economy. Volume II, scheduled for completion in February 2019, will provide more detail on several key energy issues and will encompass new analyses, as well as significant opportunities for public participation (CEC 2018e).

Senate Bill 1078: California Renewables Portfolio Standard Program

SB 1078 (Chapter 516, Statutes of 2002), and as expanded under SB 2, established the RPS for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. SB 2 expanded this law and required procurement from eligible renewable energy resources to 33 percent by 2020. In addition, electricity providers subject to the RPS must increase their renewable share by at least one percent each year.

Senate Bill X1-2: California Renewable Energy Portfolio Standard

In 2011, the Governor signed SB X1-2, which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 33 percent of their electricity supply from renewable sources by 2020. The CPUC and CEC jointly implement the statewide RPS program through rulemakings and monitoring the activities of electric energy utilities in the state.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Senate Bill 100: California Renewable Energy Portfolio Standard Program: Emissions of Greenhouse Gases

Approved by the Governor on September 10, 2018, SB 100 amends the State's RPS program from 33 percent of electricity generation from renewable sources by 2020 and 50 percent by 2030 to 33 percent by 2020, 50 percent by 2026, 60 percent by 2030, and 100 percent carbon-free electricity generation by 2045.

Assembly Bill (AB) 1493: Reduction of Greenhouse Gas Emissions

AB 1493 (Chapter 200, Statutes of 2002), known as the Pavley bill, amended Health and Safety Code sections 42823 and 43018.5 requiring CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light-duty trucks, and other vehicles used for noncommercial personal transportation in California.

Implementation of new regulations prescribed by AB 1493 required that the state of California apply for a waiver under the federal Clean Air Act. Although the USEPA initially denied the waiver in 2008, USEPA approved a waiver in June 2009, and in September 2009, CARB approved amendments to its initially adopted regulations to apply the Pavley standards that reduce GHG emissions to new passenger vehicles in model years 2009 through 2016. According to CARB, implementation of the Pavley regulations is expected to reduce fuel consumption while also reducing GHG emissions.

Energy Action Plan

In the October 2005 *Energy Action Plan (EAP) II*, the CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statutes of 2005) required the CEC to prepare a plan to increase the use of alternative fuels in California. The CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other federal, State, and local agencies. The State Alternative Fuels Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan, Executive Order S-06-06

Executive Order (EO) S-06-06, April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels in California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and

recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 Plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications
- Create jobs and stimulate economic development, especially in rural regions of the state
- Reduce fire danger, improve air and water quality, and reduce waste

Title 24, California Code of Regulations

California Code of Regulations, Title 24, Part 6, is California's Energy Efficiency Standards for Residential and Non-residential Buildings. The CEC established Title 24 in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and nonresidential buildings. The standards are updated on an approximately three-year cycle to allow consideration and possible incorporation of new efficient technologies and methods. In 2016, the CEC updated Title 24 standards with more stringent requirements effective January 1, 2017. All buildings for which an application for a building permit is submitted on or after January 1, 2017, must follow the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The CEC Impact Analysis for California's 2016 Building Energy Efficiency Standards estimates that the 2016 Standards are 28 percent more efficient than the previous 2013 standards for residential buildings and five percent more efficient for non-residential buildings. The building efficiency standards are enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary due to local climatologic, geologic, or topographic conditions, provided these standards exceed those provided in Title 24.

California Green Building Standards Code (2016), California Code of Regulations Title 24, Part 11

The California Green Building Standards Code, commonly referred to as "CalGreen" was brought into effect on August 1, 2009 to outline architectural design and engineering principles that are in synergy with environmental resources and public welfare. CalGreen sets minimum standards for buildings, and since 2016, applies to new building construction and some alterations/additions within certain parameters.

The 2016 version of CalGreen laid out the minimum requirements for newly constructed residential and nonresidential buildings to reduce GHG emissions through improved efficiency and process improvements. It also includes voluntary tiers to encourage building practices that improve public health, safety, and general welfare by promoting a more sustainable design. If the project is submitted for building plan check on January 1, 2020 or after, the 2019 code cycle will be effective. The 2019 update includes new requirements for construction and sustainable design, and inclusion of future EV charging stations, landscaping and irrigation such as shade trees, and air filtration systems (CalGreen Energy Systems 2019).

Local

City of Palo Alto Comprehensive Plan 2030

The Natural Environment Element (Chapter Four in the General Plan) sets forth the goal to protect lives and property from risks associated with fire-related emergencies at the urban/wildland interface. The Environmental Resources subsection discusses energy conservation and renewable energy use Goals, Policies, and Actions, summarized below (Palo Alto 2017a):

Policy N-7.1 Meet customer electricity needs with least total cost resources after careful assessment of environmental cost and benefits.

Policy N-7.2 Advance the development of a "smart" energy grid, a diverse energy resource portfolio, and technologically advanced public utilities as a key part of a smart and connected city.

Policy N-7.3 Prioritize the identification and implementation of cost-effective, reliable and feasible energy efficiency and demand reduction opportunities.

Policy N-7.4 Maximize the conservation and efficient use of energy in new and existing residences and other buildings in Palo Alto.

Policy N-7.5 Encourage energy efficient lighting that protects dark skies and promotes energy conservation by minimizing light and flare from development while ensuring public health and safety.

Policy N-7.6 Support the maximum economic use of solar electric (photovoltaic) and solar thermal energy, both as renewable supply resources for the Electric Utility Portfolio and as alternative forms of local power generation.

Policy N-7.7 Explore a variety of cost-effective ways to reduce natural gas usage in existing and new buildings in Palo Alto in order to reduce associated greenhouse gas emissions.

Action N-7.8 Support opportunities to maximize energy recovery from organic materials such as food scraps, yard trimmings and residual solids from sewage treatment.

Palo Alto Sustainability and Climate Change Plan

The City of Palo Alto launched its Sustainability and Climate Action Plan (S/CAP) in August 2014. In April 2016, the City Council adopted the primary goal of the S/CAP to achieve an 80 percent reduction in GHG emissions by 2030. In November 2016, the City Council adopted the S/CAP Framework, Principles, Guidelines, & Strategies, which establishes a roadmap towards the more ambitious goal of carbon neutrality (zero net GHG emissions) (Palo Alto 2016b).

Applicable energy reduction strategies in the S/CAP include:

- T-FAC-1. Expand bicycle infrastructure
- T-FAC-2. Expand transit options
- T-FAC-3. Grow ridesharing services and mobility apps
- T-INC-1. Provide universal transit passes
- T-LU-1. Increase zero-impact, mixed use housing
- NG-GAS-1. Encourage all-electric new buildings
- SW-1. Achieve zero waste

Palo Alto Municipal Code

The City's Green Building Ordinance and Energy Reach Ordinance exceed the mandatory efficiency standards set by the California Energy Code and to adopt the California Green Building Code Voluntary Tiers 1 and 2 as mandatory measures for new construction and addition-remodels over a certain size. The Palo Alto Green Building Ordinance requires applicants to incorporate sustainable design, construction, and operational requirements into most single-family residential, multi-family residential, and non-residential projects. The ordinance results in reduced energy and water operational costs and improved environmental quality for building owners and occupants and encourages material conservation and resource efficiency (Palo Alto 2019).

4.3.2 Impact Analysis

a. Methodology and Thresholds of Significance

Significance Thresholds

The following thresholds of significance were developed in accordance with Appendix G of the CEQA Guidelines. Energy-related impacts would be significant if the proposed project would:

1. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation
2. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency

Methodology

Housing Incentive Program Expansion

Projects developed in the program area would involve the use of energy during the construction and operational phases. Energy use during construction phases would be in the form of fuel consumption (e.g.: gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. In addition, temporary grid power may also be provided to any temporary construction trailers or electric construction equipment. Long-term operation of the projects would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting and heating and cooling systems, and fuel associated with vehicle trips to and from the program area.

BASELINE ENERGY DEMAND

The program area includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road in the City of Palo Alto. Within this area there are three service stations, two car rental and sales businesses, and three car repair and oil change businesses. The other parcels within the area contain other commercial and service uses, including a hotel, a fast food restaurant, and a light manufacturing business. Development in the program area results in both direct and indirect source energy use from motor vehicle use (passenger vehicles and trucks as well as trucks to handle cargo), energy from business operations (such as cooking, machinery, lighting, gasoline pumps, and heating and cooling systems), as well as from the provision of water, wastewater treatment, and solid waste collection and disposal services.

The existing buildings in the program area were generally constructed during a time that pre-dates the most recent building code requirements. Therefore, these structures meet less rigorous energy efficiency standards compared to current and future development.

CONSTRUCTION AND OPERATION ENERGY DEMAND

At the program-level, it is too speculative to quantify total construction- and operation-related energy consumption of future development, either in total or by fuel type. At this time, the only project proposed in the program area is the 788 San Antonio Road Mixed-Use project, which is analyzed in this EIR. Other future projects are not defined to a level that would allow project-level analysis and thus it would be speculative to include project-level impacts as part of this analysis. Rather, impacts for the program area are discussed qualitatively. Analysis of VMT impacts related to implementation of the HIP expansion based on the traffic impact study by TJKM (2020) are included in Appendix H.

788 San Antonio Road Mixed-Use Project

The proposed 788 San Antonio Road project would involve the use of energy during the construction and operational phases of the project. Energy use during the construction phase would be in the form of fuel consumption (e.g.: gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. In addition, temporary grid power may also be provided to any temporary construction trailers or electric construction equipment. Long-term operation of the proposed project would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting and heating and cooling systems. In addition, the increase in vehicle trips associated with the project would increase fuel consumption in Palo Alto.

The total consumption of energy during project construction and operation, as well as the baseline energy use for existing buildings on the project site, was estimated using the assumptions and factors from the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The CalEEMod data is provided as Appendix C.

BASELINE ENERGY DEMAND

The 788 San Antonio site is currently developed with two existing structures, and operational activities associated with existing land uses on the project site result in energy use. Such activities include fuel consumption from vehicle trips associated with existing fitness studio, storage building, and construction business; direct energy use from light industrial and commercial activities; energy used to heat, cool, light, or otherwise operate existing buildings; and energy demand associated with the provision of water, wastewater treatment, and solid waste collection and disposal services to existing land uses. Furthermore, the existing buildings on the project site were constructed in 1953 and 1967 and pre-date current building code requirements. Therefore, these structures meet less rigorous energy efficiency standards compared to proposed development.

CONSTRUCTION ENERGY DEMAND

Construction of the proposed project would require temporary energy use in the form of fuel consumption primarily as a result of operation of construction equipment on-site and vehicle trips from the transport of construction workers to and from the project site and from the export of earth materials off-site by heavy trucks. Energy consumption during construction, including gasoline

and diesel fuel consumption from construction equipment, hauling trips, vendor tips and worker trips, was estimated using the assumptions and factors from CalEEMod.

The fuel demand rate for construction equipment was derived from the total hours of operation, the equipment's horse power, the equipment's load factor, and the equipment's fuel usage per horse power per hour of operation, which are all taken from CalEEMod outputs (see Appendix C), and from compression-ignition engine brake-specific fuel consumptions factors for engines between zero to 100 horsepower and greater than 100 horsepower (U.S. EPA 2018a). The fuel demand rate for hauling and vendor trips (cut material imports) was derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from "Trips and VMT" Table contained in Section 3.0, Construction Detail, of the CalEEMod results (see Appendix C). The fuel economy for hauling and vendor trip vehicles was derived from the United States Department of Transportation (DOT). Fuel consumed for all hauling trucks was assumed to be diesel fuel. The fuel economy for worker trip vehicles was derived from DOT National Transportation Statistics and was assumed to be 24 mpg (DOT 2018). Fuel consumed for all worker trips was assumed to be gasoline fuel.

OPERATIONAL ENERGY DEMAND

The proposed project would require energy use in the form of electricity, natural gas, and gasoline consumption. The proposed project's estimated number of average daily trips was used to determine the energy consumption associated with fuel use from project operation. Electricity and natural gas consumption were provided in the CalEEMod output (Annual Report, Appendix C). Energy usage from non-residential energy usage was reduced by 30 percent to account for the requirements of 2019 Title 24 standards. CalEEMod does not incorporate water use reductions achieved by 2016 CALGreen (Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to account for compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for new development.

VMT was calculated in CalEEMod using the trip generation rates provided in the Traffic Impact Study (TIS) located in Appendix G. The assumed vehicle fleet mix provided in CalEEMod were used to determine the total annual fuel consumption of the proposed project. Vehicle classes provided in CalEEMod do not correspond exactly to vehicle classes in DOT fuel consumption data, except for motorcycles. Therefore, it was assumed that passenger cars correspond to the light-duty, short-base vehicle class, light/medium trucks correspond to the light-duty long-base vehicle class, and heavy trucks/other correspond to the single unit, 2-axle 6-tire or more class.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Impact E-1 PROJECTS IMPLEMENTED IN THE HIP EXPANSION AREA, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD CONSUME ELECTRICITY, NATURAL GAS, AND FUEL DURING CONSTRUCTION AND OPERATION. HOWEVER, NEW DEVELOPMENT IN THE PROGRAM AREA WOULD NOT PLACE SIGNIFICANT ADDITIONAL DEMAND ON CITY OF PALO ALTO UTILITIES AND WOULD BE REQUIRED TO COMPLY WITH APPLICABLE CONSERVATION STANDARDS. NEITHER CONSTRUCTION NOR OPERATION OF NEW DEVELOPMENT WOULD RESULT IN WASTEFUL, INEFFICIENT, OR UNNECESSARY CONSUMPTION OF ENERGY. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

Construction Energy Demand

Construction of future projects in the program area would require energy consumption in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. Construction contractors are required to comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which imposes limits on idling and restricts the use of older vehicles. Such compliance would reduce fuel consumption and lead to the use of fuel-efficient vehicles during covered activities, and associated fuel consumption and energy use would be temporary.

It is assumed that construction in the program area would comply with applicable regulatory standards. Although exact details of the development projects implemented in accordance with the program area are not known at this time, there are no conditions in the program area that would require non-standard equipment or construction practices that would increase fuel-energy consumption above typical rates.

The manufacturing of construction materials would also involve energy use. Due to the large number of materials and manufacturers involved in the production of construction materials, including manufacturers in other states and countries, upstream energy use cannot be estimated reasonably or accurately. However, it is reasonable to assume that manufacturers of building materials such as concrete, steel, lumber, or other building materials would employ energy conservation practices in the interest of minimizing the cost of doing business. Consistent with CEQA Guidelines Section 15145, this analysis does not evaluate upstream energy use as it is too speculative.

Operation Energy Demand

Future development under the HIP expansion could increase area energy demand from greater electricity, natural gas, and diesel/gasoline consumption in the program area as parcels could be redeveloped as infill residential mixed-use. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, and water use in residential units and commercial/retail businesses. Diesel and gasoline consumption would be attributed to the employees accessing

commercial/retail businesses, and truck deliveries and vehicles used for residents, customers, and on-site goods movement.

Projects developed in the program area would incorporate the following design features and attributes promoting energy efficiency and sustainability:

- Compliance with the Palo Alto Green Building Ordinance and Energy Reach Ordinance to be 10 percent more energy efficient than the mandatory efficiency standards set by CalGreen. Development is required or encouraged to incorporate energy-saving features such as PV panels for renewable power, rooftop gardens, low indoor water use appliances, recycled water irrigation systems, and thermal insulation.
- Construction of infill residential or mixed-use development near two bus stops servicing four VTA routes, for easy public transit access.
- Incorporation of EV-ready outlets for future charging stations, in compliance with the Palo Alto Green Building Ordinance and Energy Reach Ordinance.

As discussed in Section 4.1, *Air Quality*, it can be assumed that 1,000 residents in the HIP expansion area would commute, which would equal a net reduction of 8,930 daily VMT in the region using the same methodology applied to the 788 San Antonio Road project (see below analysis). Dividing by the average fuel economy of 24 miles per gallon, a net reduction of approximately 372 gallons per day, or 135,810 gallons of fuel annually, would occur.

Therefore, implementation of the HIP expansion would not result in a wasteful and inefficient use of nonrenewable resources during the construction or operation of future development, and impacts would be less than significant.

788 San Antonio Road Project

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The manufacturing of construction materials would also involve energy use. Due to the large number of materials and manufacturers involved in the production of construction materials, including manufacturers in other states and countries, upstream energy use cannot be estimated reasonably or accurately. However, it is reasonable to assume that manufacturers of building materials such as concrete, steel, lumber, or other building materials would employ energy conservation practices in the interest of minimizing the cost of doing business. Consistent with CEQA Guidelines Section 15145, this analysis does not evaluate upstream energy use as it is too speculative.

The proposed project would require site preparation and grading; pavement and asphalt installation; building construction; architectural coating; and landscaping and hardscaping. Construction would be typical for the region and building type. The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from the CalEEMod run (Appendix C).

Table 4.3-5 presents the estimated construction phase energy consumption, indicating construction equipment, vendor trips, and worker trips would consume approximately 62,975 gallons of fuel over the project construction period. Construction equipment would consume approximately 30,927 gallons of diesel fuel; vendor/haul trips would consume approximately 14,665 gallons of diesel fuel;

and worker trips would consume approximately 17,383 gallons of gasoline fuel over the project's estimated construction period. According to the California Annual Retail Fuel Outlet Report Results (CEC-A15), retail diesel sales in Santa Clara County totaled approximately 132 million gallons, while retail gasoline sales totaled approximately 1.05 billion gallons in 2018 (CEC 2019h). Therefore, fuel consumption associated with project construction would account for approximately 0.03 percent of annual retail diesel sales and approximately 0.002 percent of annual retail gasoline sales in Santa Clara County. Therefore, energy consumption from project construction would not represent a wasteful or inefficient use of energy resources.

Table 4.3-5 788 San Antonio Road Project Construction Fuel Consumption

Fuel Type[1]	Gallons	MBtu[2]
Diesel Fuel (Construction Equipment)[1]	30,927.1	3,9412.0
Diesel Fuel (Vendor/Haul Trips)[2]	14,665.0	1,869.2
Other Petroleum Fuel (Worker Trips)[3]	17,383.1	1,908.2
Total	**62,975.2**	**43,189.4**

[1]Fuel demand rates for construction equipment, hauling and vendor trips, and worker trips are derived from CalEEMod outputs (Appendix C), fuel consumptions factors for construction vehicle engines (U.S. EPA 2018a), and fuel consumption data from the (U.S. DOT 2018). See Appendix E for calculations and analysis.

[2]Low-sulfur Diesel CA-GREET 3.0 fuel specification of 127,460 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above (CARB 2018c).

[3]CaRFG CA-GREET 3.0 fuel specification of 109,772 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above.

Notes: Totals may not add up precisely due to rounding.

Similar to the manufacturers utilizing energy conservation methods to reduce costs, it is reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption during construction to reduce construction costs. The project would comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation, which imposes limits on idling and restricts the use of older vehicles. This would reduce fuel consumption and lead to the use of fuel-efficient vehicles on the construction site. Construction equipment would be maintained to applicable standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. Therefore, the project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be less than significant.

Operational Energy Demand

Project operation would increase area energy demand from greater electricity, natural gas, and diesel/gasoline consumption at the site. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, and water use in residential units and the commercial/retail business. Diesel and gasoline consumption would be attributed to the employees accessing commercial/retail business, and truck deliveries and vehicles used for residents, customers, and on-site goods movement.

The project incorporates the following design features and attributes promoting energy efficiency and sustainability:

- Compliance with the Palo Alto Green Building Ordinance and Energy Reach Ordinance to be 10 percent more energy efficient than the mandatory efficiency standards set by the CalGreen

requirements. The project includes a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.

- Location within approximately one-quarter mile of two bus stops servicing four VTA routes for easy public transit access.
- Inclusion of bicycle parking and storage and electric vehicle (EV)-ready outlets for future charging stations at 25 percent of vehicle parking spaces, among which at least five percent would have charging stations installed.

Table 4.3-6 shows the estimated electricity usage per year based on the land use type. Electricity consumption is based on CalEEMod outputs from the air quality analysis. The outputs include Title 24 standards for the various land uses of the project and are baseline values determined through CEC surveys and studies.

Table 4.3-6 788 San Antonio Road Project Anticipated Electricity Consumption per Year

Land Use	Total Estimated Consumption (KW hours/year)
Project Consumption	
Apartments – Mid-Rise	430,643
Enclosed Parking Structure With Elevator	345,740
Regional Shopping Center	17,658
Total	**794,041**
Baseline (Existing) Consumption	
General Light Industry	49,140
Health Club	46,116
Parking Lot	8,385
Unrefrigerated Warehouse – No Rail	23,119
Total	**126,760**
Net Increase	**667,281**

Source: Table 5.3 *Energy by Land-Use* in Annual CalEEMod outputs for Baseline and Project conditions (Appendix C).

Operation of the project is estimated to consume approximately 794,041 KWh per year, or approximately 0.79 GWh per year. CPAU would serve the project, and the company provided 890 GWh in its service area in 2018. Therefore, operation of the project would represent approximately 0.089 percent of CPAU's annual electricity demand. The project's net electrical consumption over baseline conditions would be 667,281 KWh per year, or approximately 0.67 GWh per year, representing approximately 0.08 percent of CPAU's annual electricity demand. Therefore, the project would not place a significant demand on CPAU's electricity supply.

Natural gas would be consumed during the operation of the project including, but not limited to, space heating, water heating, and appliance use. Table 4.3-7 shows estimated natural gas consumption to operate the project, based on associated land uses and CalEEMod outputs.

Table 4.3-7 788 San Antonio Road Project Natural Gas Consumption per Year

Land Use	Total Estimated Consumption (Btus/year)
Project Consumption	
Apartments – Mid-Rise	890,504
Enclosed Parking Structure	0
Regional Shopping Center	8,280
Total	**898,784**
Baseline (Existing) Consumption	
General Light Industry	160,875
Health Club	150,975
Parking Lot	0
Unrefrigerated Warehouse – No Rail	8,479
Total	**320,329**
Net Increase	**578,455**

Source: Table 5.2 *Energy by Land-Use* in Annual CalEEMod outputs for Baseline and Project conditions (Appendix C).

The project would consume an estimated 0.899 MMBtu per year during operation. Santa Clara County consumed approximately 439.92 MMBtu in 2018 (CEC 2019g). The project would consume approximately 0.20 percent of Santa Clara County's annual natural gas demand. The project's net natural gas consumption over baseline conditions would be 0.578 MMBtus per year, representing approximately 0.13 percent of Santa Clara County's annual natural gas demand. Therefore, the project would not place a significant demand on natural gas supplies.

The estimated energy consumption from gasoline use was determined based on the average daily trips of the project from the traffic study by TJKM (Appendix I) and the estimated trip rates and length from the associated land uses within the project. The estimated number of average daily trips associated with the proposed project is used to determine the energy consumption associated with fuel use from the operation of the project. The majority of the fuel consumption would be from motor vehicles traveling to and from the project site. The CalEEMod outputs indicate the project would result in 1,461,689 annual VMT (Appendix F). Table 4.3-8 shows the estimated total annual fuel consumption of the project using the estimated VMT and vehicle fleet mix from the CalEEMod outputs.

Table 4.3-8 788 San Antonio Road Project Transportation Energy Consumption

Land Use	Percent of Vehicle Trips	Annual Vehicle Miles Traveled[1]	Average Fuel Economy (miles/gallon)[2]	Total Annual Fuel Consumption (gallons)	Total Fuel Consumption (MBtu)[3]
Project					
Regional Shopping Center	58.5	855,088	24.2	35,334	3,879
Apartments – Mid-Rise	41.5	606,601	24.2	25,066	2,752
Total	**100.0**	**1,461,689**	**24.2**	**60,400**	**6,630**
Baseline (Existing)					
General Light Industry	22.2	68,208	24.2	2,819	309
Health Club	71.1	218,047	24.2	9,010	989
Unrefrigerated Warehouse – No Rail	6.7	20,480	24.2	84.63	9.29
Total	**100.0**	**306,735**	24.2	**12,675**	**1,392**
Net Increase		**1,154,954**		**47,725**	**5,238**

[1]Mitigated annual VMT found in Table 4.2 *Trip Summary Information* in Baseline and Project CalEEMod outputs (Appendix C).

[2]Average Fuel Economy: DOT 2018.

[3]CaRFG fuel specification of 109,772 Btu/gallon used to identify conversion rate for fuel energy consumption for automobile vehicle classes (CARB 2018c).

Notes: Totals may not add up precisely due to rounding.

The project would consume approximately 60,400 gallons of fuel each year for transportation uses, or approximately 6,630 MBtu in transportation energy consumption per year, a net increase of approximately 47,725 gallons of fuel each year and 5,238 MBtu in energy each year. Santa Clara County consumed approximately 6.91 million gallons of fuel in 2018, equal to 75,862,126 MBtu. The project would consume less than 0.02 percent of Santa Clara County's annual energy demand from gasoline fuel, and the net increase would be even less. Therefore, the project would not place a significant demand on energy use from gasoline fuel.

In conclusion, energy consumption associated with project construction would be temporary and typical of similar projects, and would not result in wasteful, inefficient, or unnecessary energy use. The operation of the project would increase the use of electricity, natural gas, and gasoline fuel from existing conditions on-site. However, the increase would be typical of other industrial projects and otherwise would not result in wasteful, inefficient, or unnecessary energy use, and energy providers would have sufficient supplies to serve the project. The project would comply with applicable regulations. Additionally, Mitigation Measure GHG-1, as described in Section 4.4, *Greenhouse Gas Emissions*, directs the applicant to prepare Transportation Demand Management (TDM) plan to reduce the automobile traffic demand generated by the project, thus reducing energy consumption from gasoline fuel. Impacts would be less than significant.

Based on the analysis above, project operation would not result in wasteful or unnecessary energy consumption or conflict with existing energy standards and regulations. Impacts would be less than significant, and no energy-related mitigation would be required.

Mitigation Measures

No mitigation is required.

Threshold 2:	Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Impact E-2 THE HIP EXPANSION AND THE 788 SAN ANTONIO ROAD PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT STATE REGULATIONS OR THE PALO ALTO COMPREHENSIVE PLAN OR SUSTAINABILITY AND CLIMATE ACTION PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

City of Palo Alto S/CAP

The HIP expansion and the 788 San Antonio Road Mixed-Use project would result in a potentially significant impact if they would obstruct the implementation of the S/CAP. Table 4.3-9 provides an evaluation of HIP expansion and 788 San Antonio Road mixed-use project consistency with applicable renewable energy and energy efficiency measures in the S/CAP.

Table 4.3-9 Project Consistency with S/CAP

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
T-FAC-1. Expand bicycle infrastructure	**Consistent.** The project would include 104 spaces of long-term and 11 spaces of short-term bicycle parking and storage.	**Consistent.** Projects developed in the HIP expansion area would be required to include bicycle parking as required per Palo Alto Municipal Code Section 18.52.040.
T-FAC-2. Expand transit options	**Consistent.** The project itself would not expand transit options; however, it is within approximately one-quarter mile of two bus stops servicing four VTA routes. The project would place residences and retail in a transit-accessible area, improving the viability of transit as an option for travel to services in Palo Alto.	**Consistent.** The HIP expansion would not expand transit options; however, it is near two bus stops servicing four VTA routes. Projects in the program area would place new residences in a transit-accessible area, improving the viability of transit as an option for travel to services in Palo Alto.
T-FAC-3. Grow ridesharing services and mobility apps	**Consistent.** Future residents can choose to participate in such programs and the project would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, the project applicant would be required to develop a TDM plan, which would include options to increase ridesharing and carsharing service to the project site.	**Consistent.** Future residents can choose to participate in such programs and projects developed in the program area would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, project applicants would be required to develop a Transportation Demand Management (TDM) Plan, which would include options to increase ridesharing and carsharing service to the project site.
T-INC-1. Provide universal transit passes	**Consistent.** Future residents can choose to participate in this program and the project would not conflict with its implementation. Additionally, pursuant to Mitigation Measure GHG-1, the project applicant would be required to develop a TDM Plan, which would include options to subsidize transit for future employees and residents of the project site.	**Consistent.** Future residents can choose to participate in such programs and projects developed in the program area would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, project applicants would be required to develop a TDM Plan, which would include options to increase ridesharing and carsharing service to the project site.
T-INC-2. Implement parking pricing and feebates	**Consistent.** The project would comply with the City of Palo Alto parking standards.	**Consistent.** Projects in the program area would be required to comply with the City of Palo Alto parking standards.

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
T-LU-1. Increase zero-impact, mixed use housing	**Consistent.** The project is a mixed-use infill project and would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with State and City requirements. The project would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.	**Consistent.** Projects in the program area would be mixed-use or residential infill projects and would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with State and City requirements. Projects would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.
T-EV-1. Electrify Palo Alto-based vehicles	**Not applicable.** The project does not involve City-based vehicles. However, the project would include EV-ready outlets for future charging stations at 25 percent of parking spaces, among which at least five percent would have charging stations installed.	**Not applicable.** The projects in the program area would not involve City-based vehicles. However, projects would be required to comply with the Palo Alto Green Building Ordinance to include EV-ready parking spaces.
NG-COMM-1. Electrify water heating in businesses	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-COMM-2. Electrify space heating in businesses	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-COOK-1. Electrify commercial cooking	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-RES-1. Electrify residential water heating	**Not applicable.** This strategy applies to existing residences.	**Not applicable.** This strategy applies to existing businesses.
NG-RES-2. Electrify residential space heating	**Not applicable.** This strategy applies to existing residences.	**Not applicable.** This strategy applies to existing businesses.
NG-GAS-1. Encourage all-electric new buildings	**Inconsistent.** The project will not be all-electric but would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance.	**Inconsistent.** Projects in the program area would not be required to be all-electric if they are three stories or less, but they would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance.
SW-1. Achieve zero waste	**Consistent.** The project would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Waste from project operations would be subject to the City of Palo Alto's waste diversion plan, which is on track for meeting the S/CAP goal of 95 percent by 2030. The project would be subject to the City's Zero Waste Initiatives.	**Consistent.** Projects in the program area would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Waste from project operations would be subject to the City of Palo Alto's waste diversion plan, which is on track for meeting the S/CAP goal of 95 percent by 2030. The projects would be subject to the City's Zero Waste Initiatives.

City of Palo Alto Comprehensive Plan

The HIP expansion and the 788 San Antonio Road Mixed-Use project would result in a potentially significant impact if they would conflict with or obstruct the implementation of the Comprehensive Plan. Table 4.3-10 provides an evaluation of project consistency with applicable renewable energy and energy efficiency measures in the Comprehensive Plan.

Table 4.3-10 Project Consistency with Comprehensive Plan

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
Land Use		
Policy L-1.2. Limit future urban development to currently developed lands within the urban service area. The boundary of the urban service area is otherwise known as the urban growth boundary. Retain undeveloped land west of Foothill Expressway and Junipero Serra as open space, with allowances made for very low-intensity development consistent with the open space character of the area. Retain undeveloped land northeast of Highway 101 as open space.	**Consistent.** The project would intensify land use on a previously developed property.	**Consistent.** The HIP expansion would intensify land use and provide infill development on previously developed properties.
Policy L-1.3. Infill development in the urban service area should be compatible with its surroundings and the overall scale and character of the city to ensure a compact, efficient development pattern.	**Consistent.** The project would be infill development compatible with surroundings for high efficiency.	**Consistent.** The HIP expansion would implement infill development compatible with surroundings, particularly recent residential and mixed-use development.
Policy L-1.12. Hold new development to the highest development standards in order to maintain Palo Alto's livability and achieve the highest quality development with the least impacts	**Consistent.** The project would be required to comply with the Palo Alto Green Building Ordinance and all applicable state and City regulations.	**Consistent.** Projects in the program area would be required to comply with the Palo Alto Green Building Ordinance and all applicable state and City regulations.
Policy L-2.2. Enhance connections between commercial and mixed use centers and the surrounding residential neighborhoods by promoting walkable and bikeable connections and a diverse range of retail and services that caters to the daily needs of residents	**Consistent.** The project would add mixed-use including a retail commercial component, in an area near both residential and commercial development, and would include bicycle parking for tenants.	**Consistent.** Projects in the program area would add mixed-use residential, commercial/retail development in an area near both residential and commercial development. Projects would include bicycle parking as required under the Palo Alto Municipal Code.
Program L2.4.5. Update the municipal code to include zoning changes that allow a mix of retail and residential uses but no office uses. The intent of these changes would be to encourage a mix of land uses that contributes to the vitality and walkability of commercial centers and transit corridors.	**Consistent.** The project would add mixed-use including a retail commercial component, in an area near both residential and commercial development and would be located within one-quarter mile of transit stops.	**Consistent.** The HIP expansion would include a zoning change to add mixed-use including retail commercial components, in an area near both existing residential and commercial development and would be located near two transit stops.

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
Policy L-2.2. Create opportunities for new mixed use development consisting of housing and retail.	**Consistent.** The project would add mixed-use with residential and a retail commercial component.	**Consistent.** The HIP expansion would include a zoning change to add mixed-use including retail commercial components
Policy L-2.11. Encourage new development and redevelopment to incorporate greenery and natural features such as green rooftops, pocket parks, plazas and rain gardens.	**Consistent.** The project would include a rooftop garden and interior plazas.	**Consistent.** The HIP expansion would include a zoning change that would allow rooftop gardens to count towards required open space.
Program T1.3.1. Develop an electric vehicle promotion program that identifies policy and technical issues, barriers and opportunities to the expansion of electric vehicles.	**Consistent.** The project would include EV-ready outlets for future charging stations at 25 percent of parking spaces, among which at least five percent would have charging stations installed.	**Consistent.** Projects in the program area would comply with the Palo Alto Green Building Ordinance to include EV-ready parking spaces.
Policy T-1.17. Require new office, commercial and multi-family residential developments to provide improvements that improve bicycle and pedestrian connectivity as called for in the 2012 Palo Alto Bicycle + Pedestrian Transportation Plan	**Consistent.** The project applicant would contribute to the City's development impact fees, including to funds that would support bicycle and pedestrian improvements in the City.	**Consistent.** Project applicants would contribute to the City's development impact fees, including to funds that would support bicycle and pedestrian improvements in the City.
Policy T-4.7 Require new residential development projects to implement best practices for street design, stormwater management and green infrastructure.	**Consistent.** The project would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.	**Consistent.** Projects in the program area would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.
Policy N-7.4. Maximize the conservation and efficient use of energy in new and existing residences and other buildings in Palo Alto.	**Consistent.** The project would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.	**Consistent.** Projects in the program area would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
Policy N-7.5 Encourage energy efficient lighting that protects dark skies and promotes energy conservation by minimizing light and glare from development while ensuring public health and safety.	**Consistent.** The project would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including energy-efficient lighting that minimizes light trespass and glare	**Consistent.** Projects in the program area would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including energy-efficient lighting that minimizes light trespass and glare

Source: Palo Alto 2017.

As shown in Table 4.3-9 and Table 4.3-10, the HIP expansion and the 788 San Antonio Road mixed-use project are generally consistent with all applicable energy efficiency policies.

Mitigation Measures

No mitigation is required.

c. Cumulative Impacts

As discussed in Section 3, *Environmental Setting*, cumulative development in the City of Palo Alto and adjacent Mountain View would include residential and commercial development. Each of the future developments would increase the consumption of energy and energy demand in the region. Energy consumption by the cumulative projects would be regulated by Energy Efficiency Standards embodied in Title 24 of the California Building Code and, in the City, the Palo Alto Green Building Ordinance, which apply to new construction of both residential and non-residential buildings and indirect energy reduction measures from GHG reduction policies. Homes built in 2020 and beyond will be highly efficient and will be built to utilize photovoltaic generation to support expected annual electric needs (CalGreen Energy Systems 2019).

The City of Palo Alto and Association of Bay Area Governments have policies and programs to reduce overall energy consumption in the City and the region. Pursuant to the policies included in its Comprehensive Plan and Municipal Code regulations, the City encourages energy efficient design in public and private development. Planned, pending, and reasonably foreseeable projects would be subject to these applicable policies, and ongoing implementation of the programs described above would continue to reduce energy demand associated with future projects.

Additionally, CPAU meets over 50 percent of Palo Alto's electricity demand with renewable energy sources, well above California as a whole (CPAU 2019). Projects serviced by CPAU would not place a significant or disproportionate demand on non-renewable energy sources in the state. Therefore, no cumulative impacts (including project-specific impacts and operations) are anticipated to result in the wasteful use of energy. Impacts from both the HIP expansion and 788 San Antonio Road mixed-use project would be less than significant.

4.4 Greenhouse Gas Emissions

This section discusses the potential impacts related to greenhouse gas (GHG) emissions and climate change from future development under the HIP expansion and the 788 San Antonio Road project.

4.4.1 Setting

a. Climate Change and Greenhouse Gases

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and eSF_6 (United States Environmental Protection Agency [U.S. EPA] 2018a). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2007).

Greenhouse Gas Emissions Inventory

Worldwide anthropogenic emissions of GHGs were approximately 46,000 million metric tons (MMT, or gigatonne) CO_2e in 2010 (IPCC 2014). CO_2 emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, carbon dioxide was the most abundant accounting for 76 percent of total 2010 emissions. Methane emissions accounted for 16 percent of the 2010 total, while nitrous oxide and fluorinated gases accounted for 6 percent and 2 percent respectively (IPCC 2014).

Federal Emissions Inventory

Total United States GHG emissions were 6,511.3 million metric tons (MMT or gigatonnes) of CO_2e in 2016 (U.S. EPA 2018b). Total United States emissions have increased by 2.4 percent since 1990; emissions decreased by 1.9 percent from 2015 to 2016 (U.S. EPA 2018b). The decrease from 2014 to 2015 was a result of multiple factors, including: (1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector and (2) warmer winter conditions in 2016 resulting in a decreased demand for heating fuel in the residential and commercial sectors (U.S. EPA 2018b). Since 1990, U.S. emissions have increased at an average annual rate of 0.1 percent. In 2015,

the industrial and transportation end-use sectors accounted for 29 percent each of GHG emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 15 percent and 16 percent of CO_2e emissions, respectively (U.S. EPA 2018b).

California Emissions Inventory

Based on the California Air Resource Board's (CARB) California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 MMT of CO_2e in 2016 (CARB 2018a). The major source of GHGs in California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 23 percent of the state's GHG emissions, and electric power accounted for approximately 16 percent (CARB 2018a). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. CARB has projected that statewide unregulated GHG emissions for the year 2020 will be 509 MMT of CO_2e. These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

Local Emissions Inventory

Based on the GHG inventory included in the City of Palo Alto's Sustainability and Climate Action Plan (S/CAP), Palo Alto's municipal and community GHG emissions totaled 501,267 MT CO_2e in 2015, representing an approximately 36 percent reduction below 1990 levels (City of Palo Alto 2016b). The major source of GHGs in Palo Alto is associated with road travel, contributing 65 percent of the City's total GHG emissions. Natural gas is the second largest source, contributing 27 percent of the City's GHG emissions. Other emissions sources, such as landfilling recyclable material, landfill fugitive emissions, and wastewater process emissions each account for less than 3 percent of the City's total GHG emissions.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources though potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature (GMST) for the decade from 2006 to 2015 was approximately 0.87°C (0.75°C to 0.99°C) higher than the average GMST over the period from 1850 to 1900. Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT as well as sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014 and 2018).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 1°F to 2°F higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include loss in water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of

California 2019). While there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state as well as regionally-specific climate change case studies (State of California 2019). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. As temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have been occurring at higher elevations in the Sierra Nevada Mountains (State of California 2019). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality would worsen. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Natural Resources Agency 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California, which has experienced long periods of drought in recent years

This uncertainty regarding future precipitation trends complicates the analysis of future water demand. Average early spring snowpack in the western United States, including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 5.9 inches along the central and southern California coast. The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. A warmer climate is predicted to reduce the fraction of precipitation falling as snow and result in less snowfall at lower elevations, thereby reducing the total snowpack. The State of California projects that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2019). Eighty-five percent of the water for Bay Area cities comes from Sierra Nevada snowmelt stored in the Hetch Hetchy reservoir situated on the Tuolumne River in Yosemite National Park, and the remaining 15 percent of water comes from runoff in the Alameda and Peninsula watersheds (Bay Area Water Supply and Conservation Agency 2019).

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow

events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Climate change has the potential to induce substantial sea level rise in the coming century (State of California 2019). The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO] 2013). As a result, global mean sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO 2013). Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea–level rise of 10 to 37 inches by 2100 (IPCC 2018). A rise in sea levels could completely erode 31 to 67 percent of southern California beaches, result in flooding of approximately 370 miles of coastal highways during 100-year storm events, jeopardize California's water supply due to salt water intrusion, and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2019). In addition, increased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2018). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent; water demand could increase as hotter conditions lead to the loss of soil moisture; crop-yield could be threatened by water-induced stress and extreme heat waves; and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2019). In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the annual average maximum daily temperatures in California could rise by 4.4 to 5.8°F in the next 50 years and by 5.6 to 8.8°F in the next century (State of California 2019). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals related to (1) timing of ecological events; (2) geographic distribution and range; (3) species' composition and the incidence of nonnative species within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2019).

b. Regulatory Setting

California Regulations

California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. California has numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

In September 2019, the U.S. EPA and National Highway Traffic Safety Administration (NHTSA) published a final action, the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule Part One: One National Program, in the Federal Register. The action withdraws California's waiver for its GHG and zero-emission vehicles programs under the Clean Air Act and clarifies federal authority to preempt other state programs related to fuel economy standards. The joint action officially took effect November 26, 2019; however, California and 22 other states have filed suit against the U.S. EPA to block withdrawal of California's waiver (Dennis and Eilperin 2019).

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction

measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan (CARB 2014). The 2013 Scoping Plan update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the State's longer-term GHG reduction strategies with other State policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use. In 2016, the Legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. CARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32 (CARB 2018b).

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Natural Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Metropolitan Transportation Commission/Association of Bay Area Governments (MTC/ABAG) was assigned targets of a 10 percent reduction in GHGs from transportation sources from 2005 levels by 2020 and a 19 percent reduction in GHGs from transportation sources from 2005 levels by 2035.

Senate Bill 32

On September 8, 2016, the governor signed SB 32 into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with statewide per capita goals of six metric tons (MT) CO_2e by 2030 and two

MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017).

Senate Bill 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

The bill also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

California Environmental Quality Act

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, a variety of air districts have adopted quantitative significance thresholds for GHGs.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Local Regulations

Palo Alto Sustainability and Climate Change Plan

The City of Palo Alto launched its Sustainability and Climate Action Plan (S/CAP) in August 2014. In April 2016, the City Council adopted the primary goal of the S/CAP to achieve an 80 percent

reduction in GHG emissions by 2030 ("80x30 goal"). In November 2016, the City Council adopted the S/CAP Framework, Principles, Guidelines, & Strategies, which establishes a roadmap towards the more ambitious goal of carbon neutrality (zero net GHG emissions). The proposed project would result in a potentially significant impact if it would obstruct the implementation of the S/CAP (Palo Alto 2016b). Although the S/CAP does not establish quantitative thresholds, a qualitative analysis is provided to determine if the proposed project would obstruct implementation of S/CAP goals.

Palo Alto Municipal Code

The City's Green Building Ordinance and Energy Reach Ordinance exceed the mandatory efficiency standards set by the California Energy Code and to adopt the California Green Building Code Voluntary Tiers 1 and 2 as mandatory measures for new construction and addition-remodels over a certain size. The Palo Alto Green Building Ordinance requires applicants to incorporate sustainable design, construction, and operational requirements into most single-family residential, multi-family residential, and non-residential projects. The ordinance results in reduced energy and water operational costs and improved environmental quality for building owners and occupants and encourages material conservation and resource efficiency (City of Palo Alto 2020a).

4.4.2 Impact Analysis

a. Significance Thresholds

Pursuant to the requirements of Senate Bill (SB) 97, the California Natural Resources Agency adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions and analysis of the effects of GHG emissions. The adopted CEQA Guidelines provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

The vast majority of individual projects do not generate sufficient GHG emissions to influence climate change directly. However, physical changes caused by a project can contribute incrementally to significant cumulative effects, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

According to the *CEQA Guidelines*, projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (AEP 2016). Palo Alto does not currently have a qualified GHG reduction plan and thus this approach is not currently feasible.

To evaluate whether a project may generate a quantity of GHG emissions that may have a significant impact on the environment, state agencies have developed a number of operational bright-line significance thresholds. Significance thresholds are numeric mass emissions thresholds that identify the level at which additional analysis of project GHG emissions is necessary. Projects that attain the significance target, with or without mitigation, would result in less than significant

GHG emissions. Many significance thresholds have been developed to reflect a 90 percent capture rate tied to the 2020 reduction target established in AB 32. Numerous lead agencies (including the City of Palo Alto) have identified as appropriate significance screening tools for residential, commercial, industrial, and public land uses and facilities projects with horizon years before 2020.

In the 2017 BAAQMD CEQA Air Quality Guidelines, the BAAQMD outlines an approach to determine the significance of projects. For residential, commercial, industrial, and public land use development projects, the thresholds of significance for operational-related GHG emissions are as follows:

- Compliance with a qualified GHG Reduction Strategy
- Annual emissions less than 1,100 metric tons (MT) per year (MT/yr) of carbon dioxide equivalent (CO2e)
- Service person threshold (efficiency threshold) of 4.6 MT CO2e/SP/yr (residents + employees)

The BAAQMD annual emissions threshold of 1,100 MT of CO_2e per year was designed to capture 90 percent of all emissions associated with projects in the Basin and require implementation of mitigation so that a considerable reduction in emissions from new projects would be achieved. According to the California Air Pollution Control Officers Association (CAPCOA) white paper, *CEQA & Climate Change*, a quantitative threshold based on a 90 percent market capture rate is generally consistent with AB 32 (CAPCOA 2008). SB 32, codified in 2016, sets a more conservative emission reduction target of 40 percent below the 1990 level by 2030. Because the previously established threshold of 1,100 MT CO_2e was not developed to meet the targets established by SB 32, it must be adjusted to meet the new, more conservative, emission reduction target of 40 percent below the 1990 level by 2030.

An efficiency threshold is calculated by dividing the allowable GHG emissions inventory in a selected calendar year by the service population (residents plus employees). This calculation identifies the quantity of emissions that can be permitted on a per service population basis without significantly impacting the environment. According to the BAAQMD CEQA Guidelines, the efficiency threshold is appropriate for projects and plans that include both residential and non-residential land uses. Therefore, this approach is the most appropriate for the proposed HIP expansion and 788 San Antonio Road project. Although the BAAQMD has not yet quantified a threshold for 2030, a reduction of the 4.6 MT CO_2e service-population threshold by 40 percent to 2.76 MT CO_2e would be consistent with state goals detailed in SB 32. To be consistent with SB 32, the proposed HIP expansion and the 788 San Antonio Road project would need to emit no more than 2.76 MT CO_2e/SP/yr in 2030 to meet the 2030 reduction established by SB 32.

Palo Alto Sustainability and Climate Action Plan

As discussed in the regulatory section above, the proposed project would result in a potentially significant impact if it would obstruct the implementation of the S/CAP. Although the S/CAP does not establish quantitative thresholds, it provides a qualitative analysis to determine if the proposed HIP expansion and 788 San Antonio Road project would obstruct implementation of S/CAP goals.

b. Methodology

As discussed in Section 4.1, *Air Quality*, the BAAQMD developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant GHG impacts. If all of the screening criteria are met by a project, then the lead agency or applicant would not need to perform a detailed GHG assessment of their project's GHG

emissions (BAAQMD 2017c). The proposed HIP expansion would potentially facilitate up to 818 dwelling units and the 788 San Antonio Road project would include 102 dwelling units. This level of development exceeds the BAAQMD's screening levels sizes for individual project-types (BAAQMD 2017c). Table 4.4-1 shows the BAAQMD's screening level sizes for apartment and retail uses.

Table 4.4-1 BAAQMD GHG Screening Level Sizes

Land Use Type	Operational GHG Screening Size	Construction-Related Screening Size
Apartment, low-rise	78 dwelling units	114 dwelling units
Apartment, mid-rise	87 dwelling units	240 dwelling units

Source: Table 3-1, BAAQMD 2017c.

Operational Emissions

Long-term emissions relate to area sources, energy use, solid waste, water use, and transportation. Operational emissions for the proposed HIP expansion and the 788 San Antonio Road project were modeled using California Emissions Estimator Model (CalEEMod) version 2016.3.2 and compared to adjusted BAAQMD efficiency thresholds. CalEEMod default settings were used to estimate emissions associated with the HIP expansion to apply a high-level and conservative analysis. Since the 788 San Antonio Road project construction timeframe and project details are available, adjustments to the CalEEMod inputs were implemented as described below.

AREA SOURCE EMISSIONS

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, U.S. EPA, and emission factor values provided by the local air district (CAPCOA 2017). CalEEMod default settings were used for both the HIP expansion and 788 San Antonio Road project analyses.

ENERGY USE EMISSIONS

CalEEMod provides operational emissions of CO_2, N_2O, and CH_4. Emissions from energy use include electricity and natural gas use. The emissions factors for natural gas combustion are based on EPA's AP-42 (Compilation of Air Pollutant Emissions Factors) and CCAR. Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour (CAPCOA 2017). The default electricity consumption values in CalEEMod include the California Energy Commission-sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies. City of Palo Alto Utilities (CPAU), the energy provider for the project, has provided carbon-neutral electricity since 2013. As such, the energy intensity factor in CalEEMod for the San Antonio Road project electricity was revised to 0 pounds per MWh (CPAU 2018). CalEEMod incorporates 2016 Title 24 CALGreen Building Standards, which do not account for the latest iterations of Title 24. Therefore, non-residential energy usage for the 788 San Antonio Road project was reduced by 30 percent to account for the requirements of 2019 Title 24 standards.

SOLID WASTE EMISSIONS

Emissions from solid waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CAPCOA 2017). Waste disposal rates by land use and overall composition of

municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery [CalRecycle] 2019). According to a CalRecycle report to the Legislature, as of 2013 California had achieved a statewide 50 percent diversion of solid waste from landfills through "reduce/recycle/compost" programs (CalRecycle 2015). However, AB 341 sets a statewide goal that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020. Therefore, to account for the continuing actions of recycling requirements under state law (i.e., AB 341), an additional 25 percent solid waste diversion rate was included in CalEEMod analysis for the 788 San Antonio Road project.

WATER AND WASTEWATER USE EMISSIONS

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the California Energy Commission's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California. CalEEMod does not incorporate water use reductions achieved by 2016 CALGreen (Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to account for compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for the 788 San Antonio Road project.

MOBILE SOURCE EMISSIONS

For mobile sources, CO_2 and CH_4 emissions were quantified in CalEEMod. Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using the CCAR General Reporting Protocol (CCAR 2009) direct emissions factors for mobile combustion. Estimates of vehicle trips associated with the 788 San Antonio Road project were based on the adjusted rates as provided in the Trip Generation Study in the Traffic Impact Study (TIS) prepared by TJKM (Appendix G), which took into account trip reductions based on proximity to transit stops. Emission rates for N_2O emissions were based on the vehicle mix output generated by CalEEMod and the emission factors found in the CCAR General Reporting Protocol.

788 SAN ANTONIO ROAD BASELINE EMISSIONS

The 788 San Antonio Road project site is currently developed with two existing structures, and operational activities associated with existing land uses on the project site result in GHG emissions. Such activities include fuel consumption and mobile source emissions from vehicle trips associated with the existing fitness studio, storage building, and construction business; direct energy use and emissions from light industrial and commercial activities; emissions associated with energy used to heat, cool, light, or otherwise operate existing buildings; and energy demand and emissions associated with the provision of water, wastewater treatment, and solid waste collection and disposal services to existing land uses. Furthermore, the existing buildings on the project site were constructed in 1953 and 1967 and pre-date the most recent building code requirements. Therefore, these structures meet less rigorous energy efficiency standards compared to current and future development. As such, baseline conditions on the project site result in both direct and indirect emissions of GHGs. CalEEMod was used to calculate total existing emissions at the project site (see Appendix E for calculations). Table 4.4-2 shows the baseline (existing) GHG emissions for the 788 San Antonio Road project site.

Table 4.4-2 Existing Operational GHG Emissions – 788 San Antonio Road Project Site

Emission Source	Emissions (MT of CO_2e per year)
Area	<1
Energy	38
Solid Waste	24
Water	7
Mobile	
CO_2 and CH_4	126
N_2O	5
Total Emissions	**201**

Note: Totals may not sum precisely due to rounding.

See Appendix E for CalEEMod results and N2O mobile emissions data sheets.

Construction Emissions

Construction of the HIP expansion, including the 788 San Antonio Road project, would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the CEQA and Climate Change white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA 2008). Additionally, the BAAQMD does not have specific quantitative thresholds for construction activity. Therefore, although estimated in CalEEMod and provided for informational purposes, construction activity is not included in the total emissions calculations.

For additional discussion of CalEEMod emissions modeling methodology, refer to Section 4.1, *Air Quality.*

c. Project Impacts and Mitigation Measures

Threshold:	Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1 ASSUMING FULL BUILDOUT OF THE PROGRAM AREA, OPERATION OF FUTURE PROJECTS UNDER THE HIP EXPANSION WOULD NOT EXCEED THE BAAQMD GHG SERVICE-POPULATION THRESHOLD. INDIVIDUALLY, OPERATION OF THE 788 SAN ANTONIO ROAD PROJECT ALSO WOULD NOT EXCEED THAT THRESHOLD. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

Proposed construction activities, energy use, daily operational activities, and mobile sources (traffic) associated with the HIP expansion would generate GHG emissions. CalEEMod was used to calculate emissions resulting from construction and long-term operation (see Appendix E for model output).

Construction Emissions

Emissions generated by construction of future projects under the HIP expansion are an estimated 705 MT of CO_2e. However, as the BAAQMD does not have a recommended threshold for

construction-related GHG emissions, emissions associated with construction are not included in Table 4.4-3 nor compared to BAAQMD significance thresholds.

Operational Indirect and Stationary Direct Emissions

Future development proposed under the HIP expansion would result in long-term GHG emissions from new vehicle trips (mobile emissions), combustion of natural gas and use of electricity (energy emissions), solid waste disposal, water use and wastewater generation, and consumer products, architectural coatings, and landscaping equipment (area emissions). Each of the operational sources of emissions is discussed further below.

Table 4.4-3 shows the estimated operational GHG emissions associated with the HIP expansion. The annual emissions would total approximately 4,419 MT of CO_2e per year. This includes:

- **Area Emissions:** Area emissions (architectural coating and landscaping equipment) are estimated to be approximately 26 MT of CO_2e per year.
- **Energy Use Emissions:** Operation of the development associated with the HIP expansion would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels emits CO_2, and to a smaller extent, N_2O and CH_4. However, as discussed above, CPAU has provided 100 percent carbon neutral electricity since 2013 by sourcing electricity from hydroelectric and renewable resources. As such, the approximately 48 MT of CO_2e per year associated with overall energy use would be solely due to natural gas use. Although CPAU purchases "carbon offsets" to offset 100 percent of the GHG emissions generated through natural gas usage in the community, this analysis does not account for that offset. Thus, the analysis provides a conservative estimate of operational emissions associated with energy use.
- **Solid Waste Emissions:** Based on the estimate of GHG emissions from solid waste generated from the HIP expansion as it decomposes, solid waste associated with the HIP expansion would generate approximately 73 MT of CO_2e per year.
- **Water Use Emissions:** Based on the amount of electricity generated to supply and convey water for the HIP expansion, the HIP expansion would generate an estimated 138 MT of CO_2e per year.
- **Transportation Emissions:** Based on the assumptions in CalEEMod, the HIP expansion would generate an estimated 7.2 million annual vehicle miles traveled (VMT). As noted above, CalEEMod does not calculate N_2O emissions related to mobile sources. As such, N_2O emissions were calculated based on the VMT for the HIP expansion using calculation methods provided by the CCAR General Reporting Protocol (CCAR 2009). The HIP expansion would emit an estimated 2,240 MT of CO_2e per year from mobile sources. This analysis takes into account the increase in residential density that would occur with the proposed HIP expansion.

Table 4.4-3 Operational GHG Emissions at HIP Expansion Buildout

Emissions Source	Annual Emissions (MT of CO2e/year)
Operational	
Area	26
Energy	383
Solid Waste	189
Water	73
Mobile	
CO_2 and CH_4	2,199
N_2O	41
Total Emissions	**2,911**
Service Population	1,881
Emissions per Service Population (MT CO_2e/SP/year)	**1.5**
BAAQMD Efficiency Threshold	2.8
Exceed Project-Specific Threshold?	**No**

Source: see Table 2.2 "Overall Operational" mitigated emissions, CalEEMod worksheets and N_2O mobile emissions data sheets in Appendix E.

As discussed in Section 5, *Other CEQA Required Discussions*, the proposed HIP expansion would add an estimated 1,881 new residents, which would be the service population. Given an approximate service population of 1,881, HIP expansion operation would generate approximately 1.5 MT of CO_2e per service population annually. These emissions do not exceed the 2.8 MT of CO_2e/SP per year for compliance with the BAAQMD efficiency threshold as adjusted for SB 32 targets. Since GHG emissions would not exceed the adjusted BAAQMD efficiency threshold, the project would not generate a substantial increase in GHG emissions and would not conflict with AB 32 or SB 32. The impact would be less than significant.

788 San Antonio Road Project

The project would result in both temporary construction and long-term operational GHG emissions. Both construction and operational emissions are discussed in detail under "Methodology" (see Appendix E for model output). The project would involve demolition of the existing land uses on the project site and construction of 102 residential units and approximately 1,779 square feet of retail land use. Land uses proposed under the project would result in long-term GHG emissions from new vehicle trips (mobile emissions), combustion of natural gas and use of electricity (energy emissions), solid waste disposal, water use and wastewater generation, and consumer products, architectural coatings, and landscaping equipment (area emissions).

Construction Emissions

Emissions generated by construction of the 788 San Antonio Road project are an estimated 332 MT of CO_2e. However, as the BAAQMD does not have a recommended threshold for construction-related GHG emissions, emissions associated with construction are not included in Table 4.4-4 nor compared to BAAQMD significance thresholds.

Operational Indirect and Stationary Direct Emissions

Long-term emissions relate to area sources, energy use, solid waste, water use, and transportation. Each of the operational sources of emissions is discussed further below.

Table 4.4-4 shows the estimated operational GHG emissions associated with the 788 San Antonio Road project. This includes:

- **Area Source Emissions**: CalEEMod was used to calculate direct sources of air emissions associated with the 788 San Antonio Road project. These include consumer product use and landscape maintenance equipment. Area emissions are estimated to be approximately 5 MT of CO_2e per year.
- **Energy Use Emissions:** Operation of the 788 San Antonio Road project would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels emits CO_2, and to a smaller extent, N_2O and CH_4. However, as discussed above, CPAU has provided 100 percent carbon neutral electricity since 2013 by sourcing electricity from hydroelectric and renewable resources. As such, the approximately 48 MT of CO_2e per year associated with overall energy use would be solely due to natural gas use. Although CPAU purchases "carbon offsets" to offset 100 percent of the GHG emissions generated through natural gas usage in the community, this analysis does not account for that offset. Thus, the analysis provides a conservative estimate of operational emissions associated with energy use.
- **Solid Waste Emissions:** Based on the estimate of GHG emissions from solid waste generated from the 788 San Antonio Road project as it decomposes, solid waste associated with the 788 San Antonio Road project would generate approximately 18 MT of CO_2e per year.
- **Water Use Emissions**: Based on the amount of electricity generated to supply and convey water for the 788 San Antonio Road project, the project would generate an estimated 7 MT of CO_2e per year.
- **Transportation Emissions:** Based on the assumptions in CalEEMod, the 788 San Antonio Road project would generate an estimated 1.5 million annual VMT. As noted above, CalEEMod does not calculate N_2O emissions related to mobile sources. As such, N_2O emissions were calculated based on the VMT for the project using calculation methods provided by the CCAR General Reporting Protocol (CCAR 2009). The 788 San Antonio Road project would emit an estimated 526 MT of CO_2e per year from mobile sources. This analysis takes into account the increase in residential density that would occur with the proposed project.

Table 4.4-4 Operational Emissions for 788 San Antonio Road Project

Emission Source	Annual Emissions (MT of CO_2e per year)
Operational	
Area	5
Energy	48
Solid Waste	18
Water	7
Mobile	
CO_2 and CH_4	509
N_2O	17
Total Emissions	**604**
Total Emissions Under Existing (Baseline) Conditions	201
Net Increase in Emissions	***403***
Net Increase in Service Population	192
Emissions per Service Population (MT CO_2e/SP/year)	**2.1**
BAAQMD Efficiency Threshold	2.8
Exceed Project-Specific Threshold?	**No**

Note: Totals may not add precisely due to rounding.

See Appendix E for CalEEMod results and N_2O mobile emissions data sheets.

As shown in Table 4.4-4, the 788 San Antonio Road project would result in total emissions of approximately 604 MT CO_2e per year, or a net increase of approximately403 MT CO_2e per year when accounting for existing land uses on the project site that would be demolished.

The San Antonio Road project would add an estimated 235 residents and 4 employees; therefore, it would have a service population of 239 people. However, the existing land uses on the project site also generate employees. Using a similar employment density factor as used for the project, the 18,700 square feet of commercial, storage, and light industrial uses on the site generate approximately 47 employees. Therefore, the 788 San Antonio Road project would result in a net service population increase of 192 people.

The project would result in a reduction in per service population GHG emissions compared to existing conditions on the project site and project would be below the BAAQMD efficiency threshold of 2.8 MT CO_2e/service population/year. Since GHG emissions would not exceed the adjusted BAAQMD efficiency threshold, the project would not generate a substantial increase in GHG emissions and would not conflict with AB 32 or SB 32. This impact would be less than significant.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without mitigation. No mitigation measures are required.

Threshold:	Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact GHG-2 THE HIP EXPANSION, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD GENERALLY BE CONSISTENT WITH THE APPLICABLE GOALS AND GHG REDUCTION MEASURES OF THE 2017 SCOPING PLAN, PLAN BAY AREA 2040, CITY OF PALO ALTO SUSTAINABILITY AND CLIMATE ACTION PLAN. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

2017 Scoping Plan

As described in the Setting section, SB 32 sets a GHG reduction target of 40 percent below 1990 levels by 2030. The 2017 Scoping Plan provides a framework for achieving the 2030 target. The 2017 Scoping Plan includes plan-level GHG reduction goals and policies. Table 4.4-5 compares the HIP expansion to these goals and policies. As shown in the table, the HIP expansion would align with several of the goals outlined in Appendix B of the 2017 Scoping Plan. However, the HIP expansion would be inconsistent with the 2017 Scoping Plan in the area of vehicle trip reduction. This impact is potentially significant.

Table 4.4-5 HIP Expansion Consistency with the 2017 Scoping Plan

Goals, Policies, and Actions	HIP Expansion Consistency
Plan Level Policies	
Transportation & Land Use Actions	
1. Goal: Decrease VMT a. Adopt general plan policies and diagram designations and zone map and standards that are consistent with the Sustainable Communities Strategy b. In appropriate locations, adopt: 1) as-of-right zoning, and 2) design standards and guidelines, to enable mixed use, walkable, compact, infill development that includes a range of housing types and affordability levels c. Adopt an urban growth boundary d. Streamline permitting and environmental review and reduce fees for construction of secondary units to promote infill in targeted areas e. Adopt a jurisdiction-wide transportation demand management plan which sets numeric targets or caps for the proportion of non-single occupancy vehicle (SOV) trips associated with new development, and/or an overall VMT target f. Require employer-based trip reduction programs and provide funding to support them if feasible	**Consistent -** As discussed in Section 4.6, *Transportation,* of this EIR, the HIP expansion would reduce regional net VMT by adding housing in a city with a lower per capita VMT rate for employed residents than neighboring cities. Further, the HIP expansion would involve changes to existing zoning regulations to support mixed-use, compact, infill development with multi-family housing within walking distance of four transit stops.
2. Goal: Support Electric Vehicle (EV), Hydrogen and Biogas Vehicle Use a. Streamline local permitting and siting for hydrogen fueling and electric vehicle (EV) charging infrastructure b. Adopt and implement EV and hydrogen readiness plans c. Adopt green building standards that exceed minimum State building standards for EV-capable parking spaces (e.g., by requiring installation of EV chargers and/or a larger number of EV-capable parking spaces) or match local climate action plan goals d. Support biogas use in the transportation sector	**Consistent.** Development under the HIP expansion would be required to comply with Palo Alto Green Building Code standards which include electric vehicle (EV)-ready outlets for future charging stations at a higher rate than 2020 CALGreen requirements.

Goals, Policies, and Actions	HIP Expansion Consistency
e. Adopt a Transportation Management Ordinance to require carpool, electric vehicle, and/or vanpool preferential parking spaces close to the major employment areas f. Promote use of alternative fuel or high-fuel efficient vehicles by public agencies and private businesses	
3. Goal: Manage parking more effectively to minimize driving demand and to encourage and support alternatives to driving a. Adopt a Transportation Management Ordinance to require carpool, electric vehicle, and/or vanpool preferential parking spaces close to the major employment areas	**Consistent.** Adoption of a Transportation Management Ordinance would occur at the City level and is not within the scope of the proposed HIP expansion. However, in accordance with Mitigation Measure TRANS-1a in the EIR for the City's 2030 Comprehensive Plan, projects within the program area must adopt a TDM plan to achieve a 20 percent reduction in peak-hour motor vehicle trips. Further, the program area is within approximately one-quarter mile of two bus stops servicing four VTA routes and projects in the program area would be required to comply with Palo Alto Green Building Code standards which include electric vehicle (EV)-ready outlets for future charging stations at a higher rate than 2020 CALGreen requirements.
4. Goal: Accelerate Implementation of Bicycle & Pedestrian Plans a. Adopt and implement a bicycle and pedestrian master plan which includes targets for trips taken by bicycle and on foot b. Adopt complete streets policies and active design guidelines c. Provide incentives for certifying development plans and projects using LEED for Neighborhood Development or similar third-party certification system d. Promote a Safe Routes to School Program that encourages youth to walk or ride bicycles to schools e. Promote Safe Routes to transit programs for pedestrians and bicyclists	**N/A.** Bicycle and pedestrian routes are outside the scope of the proposed HIP expansion.
5. Goal: Make public transit more frequent, reliable, integrated and accessible a. Partner with local/regional transit agencies to enhance transit ridership b. Expand transit and rail services and clean-fueled transit vehicles	**N/A.** This policy is not applicable to the Specific Plan since the City of Palo Alto does not have control over public transit service provided by the regional bus service provider, VTA, or the regional rail service provider, Caltrain. The HIP expansion does not expand transit options as that is outside the scope of the project; however, it is within approximately one-quarter mile of two bus stops servicing four VTA routes.
6. Goal: Enhance and expand car sharing and ridesharing programs a. Require local specific plans for rideshare-designated parking spaces, new bus stops, employment centers, and commercial areas b. Promote ridesharing and last-mile connections	**Consistent.** Future residents in the program area can choose to participate in ridesharing programs and the project would not conflict with their implementation. However, the HIP does not require rideshare-designated parking spaces.
7. Goal: Support municipal EV fleet adoption a. Require local public agencies to contract with fleets that set targets and policies for lowering the average GHG emissions of their fleet vehicles	**N/A.** Municipal purchases are outside the scope of the HIP expansion.

Goals, Policies, and Actions	HIP Expansion Consistency
b. Require clean vehicles be purchased as part of municipal vehicle fleet procurement c. Adopt regional joint-purchase agreements to facilitate local fleets to purchase EVs, hybrids, telematics, and other technology that can reduce GHG emissions	
8. Goal: Implement transportation demand management to reduce congestion a. Promote intelligent traffic management systems to improve traffic flow	**N/A.** Promoting intelligent traffic management systems is outside of the scope and control of the proposed HIP expansion. However, the program area is near intersections with adaptive signal timing, real-time data collection, and traffic signal upgrades.
9. Goal: Support electrification of buildings and equipment a. Create incentives for electric landscaping power tools and off-road equipment	**N/A.** Creating incentives for electric landscaping power tools and off-road equipment is outside of the scope and control of the proposed HIP expansion.
10. Goal: Adopt behavioral change programs a. Promote smart driving strategies through public education and outreach b. Promote a Safe Routes to School Program that encourages youth to walk or ride bicycles to schools c. Promote Safe Routes to transit programs for pedestrians and bicyclists d. Restrict idling for all vehicles, especially in sensitive areas such as near schools	**N/A.** It is outside the scope of the HIP expansion to create behavioral change programs.
Energy Actions	
11. Goal: Facilitate growth of renewable energy a. Streamline permitting and environmental review and reduce fees for small-scale renewable energy systems b. Adopt a community solar program to help realize economies of scale and help residents without appropriate rooftop space to participate in clean energy generation c. Incorporate renewable energy and energy efficiency into public facilities' capital improvements d. Permit renewable energy generation facilities as of right in zones with compatible uses e. Require new residential and commercial construction to install solar or be solar ready f. Encourage the development of brightfields – brownfields that are used to develop solar energy – through tax incentives, streamlining, and use of locally-owned land g. Require on-site renewable energy generation by large-scale residential and commercial projects	**Consistent.** Projects implemented in the HIP expansion program area would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance, which may be reached with the inclusion of a PV system.
12. Goal: Facilitate energy efficiency in new and existing buildings a. Promote property-assessed clean energy financing districts or other financing mechanisms to fund permanent energy-efficiency, water-efficiency, and renewable energy improvements in the residential and commercial sectors b. Adopt local ordinances to require energy-efficiency upgrades for existing buildings at the time of a major remodel or change of ownership	**Consistent.** Projects implemented in the HIP expansion program area would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance.

Goals, Policies, and Actions	HIP Expansion Consistency
c. Reduce permit fees and streamline permitting requirements for energy-efficiency and renewable energy-related building renovations d. Implement building energy audit and retrofit programs and residential solar programs e. Adopt residential and commercial energy conservation, renewable energy, and/or zero net energy ordinances (consider requirements for audits or upgrades at major renovation or time of sale) f. Incentivize energy-efficiency upgrades to existing buildings, where appropriate, upon issuing a permit for substantial modification g. Create incentive programs to promote building energy-efficiency projects	
13. Goal: Facilitate development of renewable energy storage a. Implement large-scale energy storage in commercial and industrial buildings to control peak loads	**N/A.** This is outside the scope of the proposed HIP expansion.
14. Goal: Promote renewable energy sourcing on municipal buildings and property a. Pursue renewable energy development on municipal buildings or purchase renewable energy to power municipal operations	**N/A.** This is outside the scope of the proposed HIP expansion.
15. Goal: Utilize energy-efficient equipment and systems on municipal buildings and property a. Replace public lighting with energy-efficient lighting b. Incorporate renewable energy and energy efficiency into public facilities' capital improvements	**N/A.** This is outside the scope of the proposed HIP expansion.
Water Actions	
16. Goal: Facilitate water efficiency a. Adopt water-efficient landscaping ordinances, including the use of compost and mulch, to reduce water use and encourage use of greywater for landscaping, when available b. Develop a plan requiring water recycling, and greywater and rain water reuse and provide funding for incentives and other program delivery mechanisms if feasible c. Develop a residential water efficiency auditing program d. Create an incentive program to promote efficient water use projects e. Eliminate Homeowner Association requirements for lawns and landscaping	**Consistent.** Projects implemented in the HIP expansion program area would be subject to the Palo Alto Green Building Ordinance, which includes the installation of low indoor water use appliances and recycled water irrigation system.
17. Goal: Reduce emissions from water supply and treatment a. Develop a plan to quantify and reduce GHG emissions at publicly operated treatment works (POTWs)	**N/A.** This is outside the scope of the proposed HIP expansion.
18. Goal: Facilitate groundwater recharge and maintained supply a. Work with local water agencies to evaluate the impact of proposed new developments and land use plans on groundwater and long-term water supply	**N/A.** This is outside the scope of the proposed HIP expansion.
Waste Management Actions	
19. Goal: Reduce waste disposal to landfills a. Adopt ordinances to meet zero waste goals by 2020	**Consistent.** The program area would be subject to the City of Palo Recycling and Composting Ordinance, which requires multi-family housing and commercial premises to provide bins for solid waste,

Goals, Policies, and Actions	HIP Expansion Consistency
b. Adopt a construction & demolition waste recycling ordinance c. Adopt an ordinance for zero waste from construction and demolition waste d. Adopt green building standards that include targets to exceed minimum State building standards for new construction, including requiring new construction to include bin space for organics recycling e. Require zero waste public events f. Create an effective solid waste management plan to reduce source generation and to divert waste from landfills to achieve emission reductions	compostable materials, and recyclable materials. Projects implemented in the HIP expansion program area would be subject to the Palo Alto Green Building Ordinance, which requires projects to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Projects in the program area would be subject to the City's Zero Waste Initiatives.
20. Goal: Reduce organic waste disposal to landfills and promote organic waste reuse a. Prohibit disposal of organic materials at landfills and/or prohibit the jurisdictions' hauler(s) and self-haulers from taking organic material to landfills b. Adopt green building standards that include targets to exceed minimum State building standards for new construction, including requiring new construction to include bin space for organics recycling c. Require that collected organic materials be used in edible food recovery programs or as feedstock for composting and anaerobic digestion; include assessment of 15 years organics recycling capacity needs in the General Plan; and provide appropriate zoning in compatible areas for large and community-scale composting and digestion operations d. Require implementation of residential and commercial recycling, organics collection, and edible food recovery programs e. Require generators of edible food to have contracts/agreements with food rescue organizations and prohibit edible food from being disposed or destroyed f. Implement a green-waste and/or food waste collection program g. Require that landfills incorporate the financial impact of organics disposal reductions pursuant to SB 1383 into their Financial Assurance plans h. Ensure compost materials meet standards to be used in rural lands application for carbon sequestration i. Expand anaerobic digestion capacity at existing wastewater treatment plants to allow them to accept food waste j. Require food waste reduction at commercial facilities such as restaurants, hotels, hospitals, etc., including food donations k. Require large commercial landscapers to use compost-based nutrients and soil amendments on landscaping and plants instead of artificial fertilizers and soil amendments	**Consistent.** The program area would be subject to the City of Palo Recycling and Composting Ordinance, which requires multi-family housing and commercial premises to provide bins for solid waste, compostable materials, and recyclable materials.
21. Goal: Reduce emissions from waste operations a. Adopt ordinances requiring hauling routes and fuels that minimize vehicle emissions compared to current	**N/A.** This is outside the scope of the proposed HIP expansion.

Goals, Policies, and Actions	HIP Expansion Consistency
practices (e.g., through use of renewable fuels, route optimization plan, etc.)	
Short-Lived Climate Pollutant Actions	
22. Goal: Reduce potential black carbon emissions from biomass a. Promote alternative disposal options for woody biomass wastes and prohibit open pile burning b. Support hazardous fuel reduction, defensible space clearing and forest fuel reduction in rural forested areas with high tree mortality and unnaturally high fuel loads to reduce the size and severity of catastrophic wildfires which reduces the release non-anthropogenic black carbon and methane	**N/A.** This is outside the scope of the proposed HIP expansion.
23. Goal: Reduce refrigerant usage and utilize best management practices a. Require that air conditioning and refrigeration units in new construction (and at major renovation) rely on refrigerants with low global warming potential (e.g., they use CO2 or ammonia instead of hydrofluorocarbons) b. Adopt use of low global warming potential (GWP) alternative refrigerants c. Work with local utility and waste management agencies to adopt a curbside program for old refrigerators, air-conditioning units, and automobiles to ensure proper disposal of refrigerants	**Consistent.** The California Cooling Act, which took effect on January 1, 2019, prohibits HFC refrigerants with high global warming potential for supermarket systems, condensing units, and self-contained unit. Manufacturers cannot sell equipment using prohibited refrigerants that are manufactured after January 1, 2019. Therefore, air conditioning and refrigeration units in new construction (and major renovation) in the program area would not utilize refrigerants with high global warming potential. In addition, as alternative refrigerants are developed over time, they may be used in future development.
24. Goal: Facilitate reduction of residential wood smoke a. Adopt programs, ordinances, or regulations to reduce wood smoke from residents, commercial, and recreational activities b. Require alternatives to wood heating such as heat pumps or gas heating devices in new developments, in appropriate climate zones, where infrastructure is available c. Provide incentives to reduce wood smoke by changing out uncertified wood heating devices to gas, electric, or pellet devices	**Consistent.** In accordance with BAAQMD Regulation 6, Rule 3, Wood-Burning Devices, new building construction may no longer include the installation of wood-burning devices, including fireplaces, EPA certified wood stoves or inserts, or pellet-fueled devices. Future development under the Specific Plan would be required to comply with BAAQMD rules and regulations and would not be allowed to include wood-burning devices.
Green Building Actions	
25. Goal: Facilitate building energy efficiency, electrification, and energy storage technology a. When determined to be feasible and achievable within the local jurisdiction, adopt "Tier 2" residential and commercial green building standards of the 2016 California Green Building Standards (CALGreen Code), or a third party green building certification such as the LEED or GreenPoint rating systems b. Incentivize or require electrification of residential heating for new construction, and provide incentives to convert existing residences from natural gas to electricity c. Adopt Guidelines for incentivizing new buildings to maximize energy conservation designs to promote passive solar energy generation, natural ventilation,	**Consistent.** Projects implemented in the HIP expansion program area would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance.

Goals, Policies, and Actions	HIP Expansion Consistency
effective use of daylight, or other on-site electricity generation d. Encourage the use of renewable energy and storage	
26. Goal: Minimize waste and emissions from building construction and materials a. Incentivize or require implementation of CALGreen Code building code requirements to divert and recycle construction and demolition waste, and use locally-sourced building materials and recycled content building materials, including mulch/compost, to the extent possible	**Consistent.** Projects implemented in the HIP expansion program area would be subject to the Palo Alto Green Building Ordinance, which requires projects to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Projects in the program area would be subject to the City's Zero Waste Initiatives.
27. Goal: Implement planning that reduces emissions from on-going operation of new developments a. Link green building with transportation planning to encourage lowest possible transportation impacts	**Consistent.** The HIP expansion would allow for denser transit-oriented development around two VTA stations.
28. Goal: Facilitate urban heat reduction in building design and planning a. Develop strategies and goals to reduce urban heat islands through cool roofs, urban forestry (shade trees) and cool non-roof surfaces, including covered parking areas with PV systems to provide shading b. Require cool roofs and/or green roofs on new construction, for all buildings or a subset (commercial, multi-family, etc.) of building types c. Require cool paving and/or light reflective permeable surfaces in sidewalks, patios, driveways, parking lots, or other paved areas	**Consistent.** Projects implemented in the HIP expansion program area would be subject to the Palo Alto Green Building Ordinance, which encourages cool and/or green roofs. The HIP expansion would encourage green roofs as it would amend the existing zoning code to allow rooftop gardens to count towards required open space.

Source: CARB 2017

Plan Bay Area 2040

The MTC/ABAG Plan Bay Area 2040 was created to outline a growth strategy to meet GHG emission reduction targets. As discussed in Section 4.1, *Air Quality*, development in the HIP expansion area, including the 788 San Antonio Road project, would not inhibit the measures identified in Plan Bay Area 2040 to meet ABAG's required targets from being implemented. Therefore, the HIP expansion and the 788 San Antonio Road project would not conflict with Plan Bay Area 2040.

City of Palo Alto S/CAP

The HIP expansion and the 788 San Antonio Road project would result in a potentially significant impact if they would obstruct the implementation of the S/CAP. Table 4.4-6 provides an evaluation of HIP expansion and the 788 San Antonio Road project consistency with applicable GHG reduction measures in the S/CAP.

Table 4.4-6 HIP Expansion and 788 San Antonio Road Project Consistency with S/CAP

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
T-FAC-1. Expand bicycle infrastructure	**Consistent.** The project would include 104 spaces of long-term and 11 spaces of short-term bicycle parking and storage.	**Consistent.** Projects developed in the HIP expansion area would be required to include bicycle parking as required per Palo Alto Municipal Code Section 18.52.040.

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
T-FAC-2. Expand transit options	**Consistent.** The project itself does not expand transit options as that is outside the scope of the project; however, it is approximately one-quarter mile of two bus stops servicing four VTA) routes. The project would place residences and a coffee shop in a transit-accessible area, improving the viability of transit as an option for travel to services in Palo Alto.	**Consistent.** The HIP expansion does not expand transit options as that is outside the scope of the project; however, it is near two bus stops servicing four VTA routes. Projects in the program area would place new residences in a transit-accessible area, improving the viability of transit as an option for travel to services in Palo Alto.
T-FAC-3. Grow ridesharing services and mobility apps	**Consistent.** Future residents can choose to participate in such programs and the project would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, the project applicant would develop a Transportation Demand Management (TDM) Plan, which would include options to increase ridesharing and carsharing service to the project site.	**Consistent.** Future residents can choose to participate in such programs and projects developed in the Program area would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, project applicants would develop a Transportation Demand Management (TDM) Plan, which would include options to increase ridesharing and carsharing service to the project site.
T-INC-1. Provide universal transit passes	**Consistent.** Future residents can choose to participate in this program and the project would not conflict with its implementation. Additionally, pursuant to Mitigation Measure GHG-1, the project applicant would develop a TDM Plan, which would include options to subsidize transit for future employees and residents of the project site.	**Consistent.** Future residents can choose to participate in such programs and projects developed in the Program area would not conflict with their implementation. Additionally, pursuant to Mitigation Measure GHG-1, project applicants would develop a Transportation Demand Management (TDM) Plan, which would include options to increase ridesharing and carsharing service to the project site.
T-INC-2. Implement parking pricing and feebates	**Consistent.** The project would comply with the City of Palo Alto parking standards.	**Consistent.** Projects in the Program area would be required to comply with the City of Palo Alto parking standards.
T-LU-1. Increase zero-impact, mixed use housing	**Consistent.** The project is a mixed-use infill project and would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with State and City requirements. The project would be required to comply with the Palo Alto Green Building Ordinance and be 10 percent more energy efficient than the base CALGreen code requirements, including a rooftop garden for high solar reflectance and high thermal emittance, low indoor water use appliances, recycled water irrigation system, and thermal insulation.	**Consistent.** Projects in the program area would be mixed-use or residential infill projects and would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with State and City requirements. Projects would be required to comply with the Palo Alto Green Building Ordinance to be 10 percent more energy efficient than the base CALGreen code requirements.
T-EV-1. Electrify Palo Alto-based vehicles	**Not applicable.** The project does not involve City-based vehicles. However, the project would include electric vehicle (EV)-ready outlets for future charging stations at 25 percent of parking spaces, among which at least five percent would have charging stations installed.	**Not applicable.** The projects in the program area would not involve City-based vehicles. However, projects would comply with the Palo Alto Green Building Ordinance to include EV-ready parking spaces.

Measure	788 San Antonio Road Mixed-Use Project Consistent?	HIP Expansion Consistent?
NG-COMM-1. Electrify water heating in businesses	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-COMM-2. Electrify space heating in businesses	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-COOK-1. Electrify commercial cooking	**Not applicable.** This strategy applies to existing businesses.	**Not applicable.** This strategy applies to existing businesses.
NG-RES-1. Electrify residential water heating	**Not applicable.** This strategy applies to existing residences.	**Not applicable.** This strategy applies to existing businesses.
NG-RES-2. Electrify residential space heating	**Not applicable.** This strategy applies to existing residences.	**Not applicable.** This strategy applies to existing businesses.
NG-GAS-1. Encourage all-electric new buildings	**Consistent.** The project would not be all-electric but would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance. The City of Palo Alto does not have plans to require all-electric new buildings at this time, but the City does provide 100 percent carbon neutral electricity and purchases carbon offsets to office the GHG emissions from natural gas usage.	**Consistent.** Projects in the program area would not be required to be all-electric if they are three stories or less, but they would be 10 percent more energy efficient than the base CALGreen code requirements subject to the Palo Alto Green Building Ordinance. The City of Palo Alto does not have plans to require all-electric new buildings at this time, but the City does provide 100 percent carbon neutral electricity and purchases carbon offsets to office the GHG emissions from natural gas usage.
SW-1. Achieve zero waste	**Consistent.** The project would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Waste from project operations would be subject to the City of Palo Alto's waste diversion plan, which is on track for meeting the S/CAP goal of 95 percent by 2030. The project would be subject to the City's Zero Waste Initiatives.	**Consistent.** Projects in the program area would be required to recycle or salvage a minimum of 80 percent of construction materials and project operations in accordance with City requirements. Waste from project operations would be subject to the City of Palo Alto's waste diversion plan, which is on track for meeting the S/CAP goal of 95 percent by 2030. The projects would be subject to the City's Zero Waste Initiatives.

Source: City of Palo Alto 2016b

State Plans and Policies

There are numerous state plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall state plan and policy is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. CARB's 2017 Scoping Plan, which outlines a framework to achieve SB 32's 2030 target, emphasizes innovation, adoption of existing technology, and strategic investment to support its strategies for GHG emissions reductions. Plans and regulations in support of these strategies, such as the Low Carbon Fuel Standard and regulations requiring an increasing fraction of

electricity to be generated from renewable sources, are being implemented at the statewide level; as such, compliance at a project level would occur as implementation continues statewide.

As shown in Table 4.4-6, the HIP expansion and the 788 San Antonio Road project would be generally consistent with applicable GHG reduction plans. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions and this impact would be less than significant.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without additional project-specific mitigation. No mitigation measures are required.

d. Cumulative Impacts

As discussed in Section 3, *Environmental Setting*, cumulative development in Palo Alto would include residential, commercial, and mixed-use development projects. Each of the proposed developments would generate GHG emissions from vehicle trips, electrical and water use, and other sources. The analysis of GHG emissions is cumulative in nature, as emissions affect the accumulation of GHGs in the earth's atmosphere. Projects that fall below provided thresholds are considered to have a less than significant impact, both individually and cumulatively. The HIP expansion and 788 San Antonio Road Project would not exceed the BAAQMD emissions per service-population threshold and would be consistent with applicable GHG reduction plans; therefore, cumulative impacts would be less than significant. Therefore, the project would not result in a cumulatively considerable impact.

4.5 Noise

This section analyzes potential impacts related to noise for future development under the HIP expansion and the 788 San Antonio Road project. Topics addressed include construction noise and vibration, on-site operational noise, traffic noise, the exposure of new residents to ambient noise, and aircraft noise.

4.5.1 Setting

a. Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs (e.g., the human ear). Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013a).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dBA; reducing the energy in half would result in a 3 dBA decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud ([10.5x the sound energy] (Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the. The most obvious change is the decrease in sound level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions. Noise levels from a point source (e.g., construction, industrial machinery, ventilation units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013a).

Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, a large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receptor (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA’s guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean-squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours; it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013a). Noise levels described by L_{dn} and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

b. Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (FTA 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2013b). When a building is impacted by vibration, a ground-to-foundation coupling loss will usually reduce the overall vibration level.

However, under rare circumstances, the ground-to-foundation coupling may amplify the vibration level due to structural resonances of the floors and walls.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2013b).

c. Project Site Noise Environment

Like many urban areas, transportation-related noise, including car and truck traffic and trains, dominates Palo Alto's noise environment. Highway 101 is the largest source of traffic noise in Palo Alto, with other highways and major roadways contributing as well. These include El Camino Real, the Oregon Expressway, the Foothill Expressway, Interstate 280 (I-280), Embarcadero Road, San Antonio Road, Middlefield Road, University Avenue, Page Mill Road/Oregon Expressway, and Alma Street, among others. Private cars, trucks, buses, and other types of vehicles generate noise along all of these roadways. Caltrain also runs through the center of Palo Alto and contributes to the noise environment of the city. Air traffic makes only a modest contribution to equivalent ambient noise levels in Palo Alto.

To characterize noise levels in the vicinity of the program area and project site, seven 15-minute noise measurements were taken with an ANSI Type II sound level meter during morning peak traffic hours on weekdays. Measurements 1 to 3 are representative of ambient noise around the 788 San Antonio Road project site, while measurements 4 to 7 are representative of ambient noise in and near the greater program area. Figure 4.5-1 shows the locations of these noise measurements, and Table 4.5-1 lists their timing and results.

Based on the noise measurements, the primary source of noise in the program area is motor vehicle traffic on San Antonio Road, Middlefield Road, and Charleston Road. Ambient noise levels were highest next to arterial streets: approximately 71 to 73 dBA L_{eq} on sidewalks next to Middlefield Road and San Antonio Road. Measured noise levels ranged from approximately 61 dBA L_{eq} at a distance of 200 feet from San Antonio Road to approximately 73 dBA L_{eq} on Middlefield Road east of Fairview Drive. According to noise contours in the Palo Alto 2030 Comprehensive Plan, the existing local ambient noise level adjacent to San Antonio Road is approximately 65 dBA CNEL (City of Palo Alto 2017a).

Figure 4.5-1 Noise Measurement Locations

Table 4.5-1 Noise Measurement Results in Program Area

No.	Location	Primary Noise Source	Time	Result (L_{eq})
1	On San Antonio Road sidewalk at northwest corner of project site (approximately 50 feet from roadway's centerline)	Traffic on San Antonio Road	1/8/2020, 7:19 to 7:34 a.m.	72.1 dBA
2	On Leghorn Street at southern edge of project site (approximately 30 feet from roadway's centerline)	On-site operations at concrete company, traffic on San Antonio Road	1/8/2020, 7:42 to 7:57 a.m.	67.4 dBA
3	At The Greenhouse apartment complex's driveway (approximately 200 feet west of centerline of San Antonio Road)	Traffic on San Antonio Road	1/8/2020, 8:04 to 8:19 a.m.	61.2 dBA
4	On Middlefield Road by multi-family residences east of Fairview Drive (approximately 45 from centerline of Middlefield Road)	Traffic on Middlefield Road	2/14/2020, 8:02 to 8:17 a.m.	72.8 dBA
5	On Middlefield Road west of ARCO gas station (approximately 40 feet from roadway's centerline)	Traffic on Middlefield Road and San Antonio Road	2/14/2020, 8:25 to 8:40 a.m.	71.2 dBA
6	At The Greenhouse apartment complex (approximately 105 feet west of centerline of San Antonio Road)	Traffic on San Antonio Road	2/14/2020, 8:48 to 9:03 a.m.	63.5 dBA
7	On Charleston Road west of Fabian Way (approximately 40 feet from centerline of Charleston Road)	Traffic on Charleston Road	2/14/2020, 9:12 to 9:27 a.m.	64.2 dBA

See Appendix G for noise measurement data.

d. Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. In general, residential, education, and medical uses are more sensitive to noise than are commercial and industrial activities. Noise-sensitive uses ("sensitive receptors") include residences, schools, hospitals, senior care facilities, long-term medical or mental health care facilities, or any other land use areas deemed noise-sensitive by the local jurisdiction.

Vibration-sensitive receptors are similar to noise-sensitive receptors, such as residences and institutional uses (e.g., schools, libraries, and religious facilities). However, vibration-sensitive receptors also include buildings where vibrations may interfere with vibration-sensitive equipment, affected by levels that may be well below those associated with human annoyance.

The nearest existing sensitive receptors within 500 feet of the program area and project site are the following:

- The Sequoia Academy, a private business providing after-school and weekend classes to elementary through high-school students, located adjacent to and north of the project site at 800 San Antonio Road
- Residences located on Middlefield Road approximately 100 feet southwest of the program area
- The Central Chinese Christian Church, located west of San Antonio Road approximately 140 feet from the program area and 165 feet from the project site

- The Greenhouse apartment complex, located west of San Antonio Road with residences as close as 150 feet with from the program area and 300 feet from the project site
- The Taube Koret Campus for Jewish Life, which includes senior residences and educational programs, located as close as 175 feet northwest of the program area on Charleston Road
- Residences on Middlefield Road approximately 230 feet southeast of the program area
- Residences located on San Antonio Road approximately 240 feet south of the program area

In addition, the progressive development of different parcels under the proposed HIP expansion may introduce new residential receptors near construction sites in the program area.

Existing ambient noise during peak hours was measured at approximately 71 dBA L_{eq} on the sidewalk in front of the Sequoia Academy and between 61 to 64 dBA L_{eq} at The Greenhouse apartment complex facing the project site across San Antonio Road.

e. Regulatory Environment

This section describes applicable regulations and standards pertaining to noise and vibration.

State

Caltrans

Caltrans has published applicable guidelines for vibration annoyance caused by transient and intermittent sources, as shown in Table 4.5-2.

Table 4.5-2 Caltrans Criteria for Vibration Annoyance

	Maximum PPV (in/sec)	
Human Response	**Transient Sources[1]**	**Continuous/Frequent Intermittent Sources[1]**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

[1] Caltrans defines transient sources as those that create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources can include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans 2013b

In addition, Caltrans has published guidelines for structural damage from vibration, as shown in Table 4.5-3.

Table 4.5-3 Caltrans Criteria for Vibration Damage

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2013b

Local

2030 Comprehensive Plan

The City's Comprehensive Plan Natural Environment Element includes goals and policies related to noise. This element establishes land use compatibility categories for community noise exposure (Table 4.5-4). For residential uses, hotels, and motels, the City identifies noise levels up to 60 dBA L_{dn} as normally acceptable and noise levels between 60 and 75 dBA L_{dn} as conditionally acceptable (City of Palo Alto 2017a).

Table 4.5-4 Palo Alto Land Use Compatibility for Community Noise Environments

Land Use Category	Exterior Noise Exposure L_{dn} or CNEL or dB		
	Normally Acceptable	Conditionally Acceptable	Unacceptable
Residential, Hotel and Motels	50-60	60-75	75+
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	50-65	65-80	80+
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	50-60	60-75	75+
Office Buildings, Business Commercial, and Professional	50-70	70-80	80+
Auditoriums, Concert Halls, and Amphitheaters	N/A	50-75	75+
Industrial, Manufacturing, Utilities, and Agriculture	50-70	75+	N/A

Source: City of Palo Alto 2017a

Palo Alto Municipal Code

The Palo Alto Municipal Code (PAMC) regulates noise primarily through the Noise Ordinance, which comprises Chapter 9.10 of the Code. The Noise Ordinance regulates noise associated with construction activities. Section 9.10.060 of the PAMC restricts construction activities to the hours of 8:00 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday (City of Palo Alto 2019). Construction is prohibited on Sundays and holidays (New Year's Day, Martin Luther King Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day). Construction, demolition, or repair activities must meet the following standards:

- No individual piece of equipment shall produce a noise level exceeding 110 dBA at a distance of 25 feet. If the device is housed in a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible.
- The noise level at any point outside of the property plane of the project shall not exceed 110 dBA.
- The holder of a valid construction permit for a construction project in a non-residential zone shall post a sign at all entrances to the construction site upon commencement of construction, for the purpose of informing all contractors and subcontractors, their employees, agents, materialmen and all other persons at the construction site, of the basic requirements of this chapter.

4.5.2 Impact Analysis

a. Methodology and Significance Thresholds

As listed in Appendix G of the CEQA Guidelines, a project is considered to have a significant impact related to noise if it would result in:

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;
2. Generation of excessive groundborne vibration or groundborne noise levels; or
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

As discussed in Section 13 of the Initial Study (Appendix B), the project would have no impact related to aircraft noise (threshold 3). An analysis of thresholds 1 and 2 is therefore included in this section.

Temporary Increases in Ambient Noise

Noise from temporary construction activity was estimated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). This modeling applied a typical list of equipment used in multi-story residential developments during each phase of construction. It was assumed that pile drivers would not be used to install building foundations in the program area, since they have not been used in the construction of recent multi-story buildings in Palo Alto.

Construction equipment was assumed to typically operate near the center of construction sites in the program area, which would be as close as approximately 50 feet from the nearest sensitive receptors. This is a conservative distance for the purpose of estimating equivalent noise levels over a one-hour period. Construction noise was also estimated at distances of 100 feet and 375 feet (the latter is representative of the distance from construction activity in the program area to the Greenhouse apartment complex west of the program area). For analyzing the 788 San Antonio Road mixed-use project, construction noise was analyzed at a distance of 50 feet, which is representative of the adjacent Sequoia Academy. Construction noise level estimates do not account for the presence of intervening structures or topography, which could reduce noise levels at receptor locations. Therefore, the estimated construction noise levels represent a conservative estimate of actual construction noise.

To evaluate the impact of construction noise, the City applied a standard of an increase of 10 dBA or greater in hourly noise levels above ambient conditions for project construction which would occur two or more hours per day, five days per week, for a period of 12 months or more. Although this standard has not been adopted formally by the City, it is reasonably conservative and appropriate for evaluating the impact of construction noise on people who are especially sensitive to daytime noise, such as residents.

Permanent Increases in Ambient Noise

In accordance with state requirements, City of Palo Alto Comprehensive Plan Policies N-6.14 and N-61, and Section 9.10.030(a) of the PAMC, operational noise would be significant if it would cause the following:

- Cause interior noise levels at nearby residential development to exceed 45 dBA L_{dn} (City of Palo Alto Comprehensive Plan Policy N-6.1).
- Produce, suffer or allow to be produced by any machine, animal or device, or any combination of same, on residential property, a noise level more than 6 dB above the local ambient at any point outside of the property plane (PAMC Section 9.10.030[a]).

The analysis of permanent increases in ambient noise addresses several sources: outdoor activity areas, mechanical equipment, traffic noise, and mail delivery and trash/recycling trucks.

Increases in existing and future traffic noise along area roadways were estimated by completing a screening analysis for traffic generated by the proposed HIP expansion and mixed-use project. Traffic volumes on the primary arterial roadways in the vicinity of the program area, San Antonio Road, Middlefield Road, and Charleston Road, were estimated under background conditions and cumulative development both with and without implementation of the project, using traffic volumes provided by TJKM (see Section 4.6, *Transportation*).

Modeling of traffic noise indicates that when traffic volumes increase by certain percentages, traffic noise increases by predictable amounts. For example, a 10 percent increase in traffic volume would raise traffic noise by approximately 0.4 dBA, a 20 percent increase would raise traffic noise by about 0.8 dBA, a 30 percent increase would result in an approximately 1.1 dBA increase in traffic noise, and a 40 percent increase would lead to an approximately 1.5 dBA increase in traffic noise.

This screening analysis evaluates the project's effect on traffic noise based on the FTA's recommended standards. The FTA recommendations, listed in Table 4.5-5, are based on the idea that the allowable increase in exposure to traffic noise depends on existing noise levels; as the existing noise level rises, the allowable increase in noise exposure decreases.

Table 4.5-5 Significance of Changes in Operational Roadway Noise Exposure

Existing Noise Exposure (dBA L_{dn} or L_{eq})	Criteria for Significant Noise Exposure Increase (dBA L_{dn} or L_{eq})
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

Source: FTA 2018

Groundborne Vibration

The City of Palo Alto has not adopted specific numerical thresholds for groundborne vibration impacts. Therefore, this analysis uses applicable Caltrans criteria for human annoyance (Table 4.5-2) and structural damage (Table 4.5-3) in response to vibration.

b. Project Impacts and Mitigation

Threshold 1: Would the project result in 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?

Impact N-1 THE CONSTRUCTION OF PROJECTS UNDER THE PROPOSED HIP EXPANSION, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD TEMPORARILY INCREASE AMBIENT NOISE LEVELS AT SENSITIVE RECEPTORS IN AND NEAR THE PROGRAM AREA. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Housing Incentive Program Expansion

The proposed HIP expansion would allow for higher-density residential development in the program area, potentially resulting in demolition and construction activity that would generate temporary increases in ambient noise levels. Construction noise varies based on the type of construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of the construction activities. Table 4.5-6 estimates construction noise at distances of 50, 100, and 375 feet. The 50-foot and 100-foot distances are representative of existing and potential future sensitive receptors on nearby properties, while the 375-foot distance is representative of the Greenhouse apartment complex to the west of the program area.

Table 4.5-6 Estimated Construction Noise

Construction Phase	Equipment	Noise Level (dBA L_{eq})		
		At 50 feet	At 100 feet	At 375 feet
Demolition	Concrete saw, dozer, tractor/backhoe/loader (2)	86	80	68
Site preparation	Tractor/backhoe/loader, grader	82	76	64
Grading	Tractor/backhoe/loader (2), dozer, concrete saw, truck	86	80	68
Building construction	Crane, forklift (2), tractor/backhoe/loader (2)	87	81	69
Paving	Concrete mixer (2), paver, roller, tractor/loader/backhoe	84	78	66
Architectural coating	Air compressor	74	68	56

See Appendix G for RCNM modeling results.

As shown in Table 4.5-6, construction noise could reach as high as an estimated 87 dBA L_{eq} at the nearest noise-sensitive receptors at a distance of 50 feet during the building construction phase of individual projects under the expanded HIP program. In addition, noise could reach 86 dBA L_{eq} during the demolition and grading phases. Temporary construction noise reaching 87 dBA L_{eq} at a distance of 50 feet would exceed measured daytime ambient noise levels ranging from 71 to 73 dBA L_{eq} along arterial streets by up to 16 dBA L_{eq}. Within a distance of 100 feet of construction activity, noise reaching 81 dBA L_{eq} would exceed existing ambient noise by an estimated 10 dBA L_{eq}. At the part of the Greenhouse apartment complex nearest to the program area, construction noise would reach an estimated 69 dBA L_{eq}. This would exceed existing measured daytime ambient noise levels ranging from 61 to 64 dBA L_{eq} by up to 8 dBA L_{eq}.

Although adherence to the City's allowed hours of construction would protect residents from nighttime noise that could disturb people during normal sleeping hours, temporary construction noise within 100 feet would exceed measured daytime ambient noise by at least 10 dBA L_{eq}. Therefore, it would have a potentially significant impact on noise-sensitive receptors and Mitigation Measure N-1 is required.

788 San Antonio Road Mixed-Use Project

Construction of the proposed mixed-use project would generate temporary noise that would be audible at nearby sensitive receptors, such as the Sequoia Academy adjacent to and north of the project site. This sensitive receptor would be located approximately 50 feet away from the center of the northern parcel on the project site, where an existing building would be demolished. Therefore, this analysis makes a conservative assumption that construction activity would typically be located 50 feet from the nearest sensitive receptor.

Based on Table 4.5-6, construction noise could reach as high as an estimated 87 dBA L_{eq} at a distance of 50 feet during the building construction phase. In addition, noise could reach 86 dBA L_{eq} during the demolition and grading phases. Estimated construction noise would exceed a measured daytime ambient noise level of 72 dBA L_{eq} near the Sequoia Academy by up to 15 dBA L_{eq}. At the Greenhouse apartment complex, located approximately 375 feet from construction activity, noise would reach an estimated 69 dBA L_{eq}. This noise level would exceed measured daytime ambient noise levels ranging from 61 to 64 dBA L_{eq} by up to 8 dBA L_{eq}.

Although adherence to the City's allowed hours of construction would protect residents from nighttime noise that could disturb people during normal sleeping hours, temporary construction noise at the Sequoia Academy would exceed existing measured daytime ambient noise by more than 10 dBA L_{eq}. Therefore, it would have a potentially significant impact on noise-sensitive receptors. As for the proposed HIP expansion, Mitigation Measure N-1 is required to reduce the exposure of nearby sensitive receptors to construction noise.

Mitigation Measures

The following mitigation measure is required for future projects under the HIP in the program area, including the 788 San Antonio Road project:

N-1 Construction-Related Noise Reduction Measures.

The applicant shall apply the following measures during construction of projects in the program area:

- *Mufflers.* Construction equipment shall be properly maintained and all internal combustion engine driven machinery with intake and exhaust mufflers and engine shrouds, as applicable, shall be in good condition and appropriate for the equipment. During construction, all equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers, consistent with manufacturers' standards.
- *Electrical Power.* Electrical power, rather than diesel equipment, shall be used to run compressors and similar power tools and to power temporary structures, such as construction trailers or caretaker facilities.
- *Equipment Staging.* All stationary equipment (e.g., air compressors, portable generators) shall be staged as far away from sensitive receptors as feasible. Where feasible, construct temporary noise barriers around stationary equipment in a manner that fully blocks the line of sight to residential windows in the adjacent apartment complex.
- *Equipment Idling.* Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.
- *Workers' Radios.* All noise from workers' radios shall be controlled to a point that they are not audible at sensitive receptors near construction activity.
- *Smart Back-up Alarms.* Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction.
- *Sound Barrier.* During the demolition, site preparation, grading, building, and paving phases of construction, temporary sound barriers shall be installed and maintained facing sensitive receptors (e.g., residential units, educational facilities) located within 100 feet of the center of construction activity. Temporary sound barriers shall, at a minimum, block the line of sight between noise-generating construction equipment and adjacent windows at sensitive receptors and shall be placed as close to the source equipment as feasible. Such barriers shall be field tested to reduce noise by at least 10 dBA at sensitive receptors. A sound barrier can achieve a 5 dBA noise level reduction when it is tall enough to break the line-of-sight from the source equipment to the sensitive receptor, and it can achieve an approximate 1 dBA additional noise level reduction for each 2 feet of height after it breaks the line of sight (FHWA 2011). Mobile

sound barriers may be used as appropriate to attenuate construction noise near the source equipment.

- *Disturbance Coordinator*. The applicant shall designate a disturbance coordinator who shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Significance After Mitigation

As explained above, this analysis estimates that construction activity during allowed hours would generate ambient noise up to 87 dBA L_{eq} at the nearest sensitive receptors before mitigation, which would represent an increase of up to 16 dBA L_{eq} above existing ambient noise levels. The use of temporary sound barriers according to the specifications in Mitigation Measure N-1 would reduce construction noise levels by 10 dBA L_{eq}. The installation of a temporary sound barrier as directed in Mitigation Measure N-1, combined with other noise reduction measures required in Mitigation Measure N-1, would be sufficient to reduce ambient noise during construction by at least 10 dBA L_{eq}. After this noise reduction, construction noise at the nearest sensitive receptors would be no greater than 77 dBA L_{eq}, or up to 6 dBA above existing ambient noise levels. As a result, construction activity would not cause an increase of 10 dBA or greater in hourly noise levels above existing ambient conditions at sensitive receptors for two or more hours per day, five days per week, for a period of 12 months or more. Mitigation Measure N-1 would reduce construction noise to the extent feasible, and resultant noise levels from construction activity after mitigation would not exceed the City' maximum allowable level of 110 dBA at any point outside of the project site (PAMC Section 9.10.060). Therefore, this impact would be less than significant with mitigation incorporated.

Threshold 2:	Would the project result in 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?

Impact N-2 **ON-SITE ACTIVITIES DURING THE OPERATION OF RESIDENTIAL PROJECTS IN THE PROGRAM AREA, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD GENERATE NOISE LEVELS THAT MAY PERIODICALLY BE AUDIBLE TO EXISTING USES NEAR THE PROJECT SITE. THE PROJECT WOULD ALSO INCREASE TRAFFIC NOISE ON AREA ROADWAYS AND WOULD GENERATE ON- AND OFF-SITE NOISE FROM MAIL AND DELIVERY TRUCKS TRAVELLING TO AND FROM THE SITE. HOWEVER, THESE NOISE LEVELS WOULD NOT EXCEED APPLICABLE STANDARDS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.**

The following analysis considers permanent operational noise that would result from the project and the exposure of new residents to existing ambient noise.

Housing Incentive Program Expansion

Mechanical Equipment

Mechanical equipment includes heating, ventilation, and air conditioning (HVAC) equipment typically located on the roof of a building or within an interior mechanical room. Noise levels from

large-scale rooftop-mounted commercial HVAC systems are typically in the range of 60 to 70 dBA L_{eq} at a distance of 15 feet from the source (Illingworth & Rodkin, Inc. 2009). It is assumed that HVAC equipment for new residential and multi-use development facilitated by the HIP expansion would not exceed this reference noise level for large-scale commercial facilities. Conservatively, HVAC equipment in the program area would be installed at a distance of at least 25 feet from the nearest sensitive receptors. At this distance, HVAC equipment would generate an estimated 66 dBA L_{eq}, without accounting for a shielding effect by rooflines and parapets. The estimated noise level from new HVAC equipment would not exceed the local ambient noise level of up to 65 dBA CNEL next to San Antonio Road by more than 1 dBA. At the rear side of parcels in the program area, near the southeastern city limits bordering Mountain View, new HVAC equipment could generate noise exceeding the local ambient noise level of 60 dBA CNEL by up to 6 dBA at adjacent properties. However, new HVAC equipment would not generate greater noise than existing HVAC equipment at commercial and institutional buildings in the urbanized program area. Therefore, new HVAC noise would not generate a net increase in ambient noise levels at nearby sensitive receptors, relative to existing conditions. On-site mechanical equipment would have a less than significant noise impact.

Traffic Noise

The proposed HIP expansion would facilitate up to 818 new residential units in the program area, which would generate new vehicle trips on roadways. Arterial routes in and near the program area, especially San Antonio Road, would accommodate most new trips.

Table 4.5-7 shows the effect of vehicle trips generated by maximum potential growth under the HIP expansion on background traffic volumes. This table focuses on roadway segments that are adjacent to sensitive receptors near the program area, including residences, schools, and places of worship. The traffic data is derived from the HIP Expansion Traffic Study Report prepared by TJKM in June 2020.

Table 4.5-7 Background Plus HIP Expansion Traffic Levels during AM Peak Hour

Roadway Segment	Background AM Peak Hour Trips	New Project-Generated Trips	Percentage Increase from New Trips
San Antonio Road			
North of Leghorn Street	2,265	89	+5.0%
South of Leghorn Street	2,364	192	+10.3%
Middlefield Road			
West of San Antonio Road	1,609	17	+1.1%
East of San Antonio Road	1,695	54	+3.3%
Charleston Road			
West of San Antonio Road	2,400	12	+0.6%

Source: TJKM 2020; see Appendix H

As shown in Table 4.5-7, traffic generated by the HIP expansion would not increase background traffic volumes on roadway segments next to sensitive receptors by more than approximately 10 percent. A 10 percent increase in traffic volume would result in a 0.4 dBA increase in traffic noise. Because existing peak-hour ambient noise is in the 65-74 dBA range along the studied arterial roadways, the FTA's applicable criterion for a significant increase in traffic noise would be 1 dBA.

The estimated 0.4 dBA increase in traffic noise would not exceed this level. Therefore, the HIP expansion would have a less than significant impact from increases in traffic noise.

Mail Delivery and Trash/Recycling Trucks

Noise from mail delivery trucks and trash/recycling hauling trucks serving new developments under the HIP expansion would generate periodic noise in the program area. Mail delivery and trash/recycling hauling trucks would access these developments primarily via San Antonio Road, Charleston Road, and/or Middlefield Road. Both mail delivery and trash hauling trucks would periodically idle on streets while performing duties. The average noise level for a single idling truck is estimated at 80 dBA L_{eq} at a distance of 10 feet (BridgeNet 2008). Garbage trucks have been measured at 65 dBA L_{eq} at a distance of 50 feet while idling and up to 80 to 90 dBA while emptying dumpsters (DSA Engineers 2003). However, estimated noise from idling trucks would not be substantially louder or occur more frequently than under existing conditions, as idling trucks including trash/recycling-hauling trucks, currently serve the existing businesses in the program area. Furthermore, San Antonio Road, Charleston Road, and Middlefield Road are through truck routes in the vicinity of the program area, per PAMC Section 10.48, and trucks regularly use these arterial roadways to access other properties, including nearby sensitive receptors. As such, noise from delivery and trash trucks would be consistent with existing noise levels and would have a less than significant impact on sensitive receptors.

Exposure of New Residents to Noise

The California Supreme Court in a December 2015 opinion (*BIA v. BAAQMD*) confirmed that CEQA is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. Nevertheless, the state of California and City of Palo Alto have policies that address existing conditions (e.g., ambient noise) affecting a proposed project, addressed below.

The proposed HIP expansion would allow for higher-density residential development in the program area next to busy arterial roadways that generate substantial traffic noise. Based on the noise measurements shown in Table 4.5-1, peak-hour ambient noise levels in the program area reach 71 to 73 dBA L_{eq} next to arterial roadways including San Antonio Road, Middlefield Road, and Charleston Road. As described in Table 4.5-4, residential uses in the 60-75 dBA CNEL or L_{dn} range are considered conditionally acceptable and noise over 75 dBA CNEL or L_{dn} is considered unacceptable. Although there is no precise way to convert a peak hourly L_{eq} to a 24-hour weighted noise level, in urban areas near heavy traffic the peak hourly L_{eq} is typically 2-4 dBA lower than the daily L_{dn} or CNEL. Therefore, exterior noise during peak-hour traffic could reach 73 to 77 dBA CNEL or L_{dn} in the program area, which could enter the City's unacceptable range according to Table 4.5-4. In particular, upper-floor balconies facing arterial roadways may be exposed to an unacceptable exterior noise level.

The use of standard modern building materials also would reduce exterior noise by at least 20 dBA within habitable rooms. In addition, buildings constructed under the HIP expansion would shield residences in the interior of sites from roadway noise, providing further attenuation of ambient noise. With the reduction of at least 20 dBA in exterior-to-interior noise, it is estimated that new residences facing arterial roadways would have interior noise levels of up to 57 dBA L_{dn}. Without further noise reduction measures beyond standard building materials, this interior noise level would exceed the City's standard of 45 dBA L_{dn}.

In accordance with Title 24 of the California Code of Regulations and consistent with Policy N-6.1 of the Comprehensive Plan, developments facilitated by the proposed HIP expansion would be required to attenuate interior noise so that it does not exceed 45 dBA L_{dn} (California Building Standards Commission 2017). To comply with these requirements, project applicants would be required to design exterior wall assemblies to achieve interior levels of 45 dBA L_{dn}. Therefore, new residential buildings in the program area would be constructed to prevent the exposure of new residents to excessive noise. This impact would be less than significant.

788 San Antonio Road Mixed-Use Project

Operation of the proposed mixed-use project would generate noise associated with the outdoor courtyard and roof garden areas, mechanical equipment, project-generated traffic, and mail delivery and trash/recycling trucks. These are discussed in detail below.

Outdoor Courtyard and Roof Garden

Operation of the mixed-use project would involve residential use of the central courtyard area and rooftop garden, which includes seating, a lounge area, and a gathering space with a fire pit. Noise-generating activities typical of these outdoor activity areas are food services and general conversation. Because the proposed four-story building would fully enclose the central courtyard area, food service activities and conversations in the courtyard would not increase ambient noise levels at nearby properties.

Noise from the proposed rooftop patio area would primarily consist of people conversing. Conversational noise was estimated based on noise levels from an approved certified EIR for the Palladium Residences Project in Los Angeles. The noise level of 20 people talking simultaneously was estimated at 63 dBA L_{eq} at receptors 3 feet away (City of Los Angeles 2014). The outdoor patio area would be located adjacent to San Antonio Road, where the existing local ambient noise level is 65 dBA CNEL. This area would be located as close as approximately 110 feet from the nearest sensitive receptors. At this distance, noise from human conversations would decrease to an estimated 32 dBA. Therefore, noise from the outdoor patio area would not approach the local ambient noise level of 65 dBA CNEL next to San Antonio Road. In addition, it would not exceed the local ambient noise level of 60 dBA CNEL at a greater distance from San Antonio Road.

Furthermore, outdoor patio area users would be subject to regulation and enforcement under the City's Noise Ordinance, specifically PAMC Section 9.10.040, which states that "no person shall produce, suffer or allow to be produced by any machine or device, or any combination of same, on commercial or industrial property, a noise level more than eight dB above the local ambient at any point outside of the property plane." Therefore, the on-site outdoor courtyard and rooftop garden would have a less than significant noise impact.

Mechanical Equipment

Based on the proposed roof plans, mechanical equipment would be installed at the northern and eastern edges of the rooftop. Rooftop-mounted HVAC equipment could be located as close as approximately 50 feet from education activities at the Sequoia Academy to the north of the project site (accounting for both horizontal and vertical distance from classrooms to the rooftop level on-site). Noise levels from large-scale rooftop-mounted commercial HVAC systems are typically in the range of 60 to 70 dBA L_{eq} at a distance of 15 feet from the source (Illingworth & Rodkin, Inc. 2009). It is assumed that HVAC equipment for the proposed multi-use building would not exceed this noise level.

At a distance of 50 feet to the nearest sensitive receptor, it is estimated that HVAC units would generate a noise level of up to 60 dBA L_{eq} during both daytime and nighttime hours. This estimate is conservative because it does not account for shielding of HVAC noise by the proposed building's roofline and parapet. Even without accounting for shielding, estimated HVAC noise would not exceed the local ambient noise level of up to 65 dBA CNEL along San Antonio Road. Although HVAC noise could incrementally exceed the local ambient of 60 dBA CNEL at a greater distance from San Antonio Road, the proposed HVAC equipment would not generate greater noise than existing HVAC equipment at the two on-site buildings that are proposed for demolition. Therefore, new HVAC equipment would not result in a net increase in ambient noise beyond existing conditions at nearby sensitive receptors. On-site mechanical equipment would have a less than significant noise impact.

Traffic Noise

The proposed mixed-use project would generate a subset of the net increase in vehicle trips from development under the HIP expansion. As discussed above, the HIP expansion would generate traffic that increases existing ambient noise levels by no more than 0.4 dBA, which would not exceed the applicable FTA criterion of a 1 dBA increase in traffic noise. Traffic generated by the mixed-use project would account for a minor portion of the HIP expansion's less-than-significant increase in traffic noise. Therefore, it would also have a less than significant impact.

Mail Delivery and Trash/Recycling Trucks

As discussed above, mail delivery trucks and trash/recycling hauling trucks serving developments under the proposed HIP expansion would generate periodic noise in the program area. Consistent with this analysis for the program area as a whole, trucks serving the proposed mixed-use project would also generate periodic noise near the project site. Mail delivery and trash/recycling hauling trucks would access the project site via San Antonio Road. Both mail delivery and trash hauling trucks would periodically idle on San Antonio Road and Leghorn Street while performing duties. As for the program area, truck noise would be consistent with existing noise levels and would have a less than significant impact on sensitive receptors.

Exposure of New Residents to Noise

As discussed above, the California Supreme Court in a December 2015 opinion (*BIA v. BAAQMD*) confirmed that CEQA is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. Nevertheless, the state of California and City of Palo Alto have policies that address existing conditions (e.g., ambient noise) affecting a proposed project, addressed below.

The 788 San Antonio Road project would locate a mixed-use development next to a busy arterial roadway that generates substantial traffic noise. Based on the noise measurements shown in Table 4.5-1, peak-hour ambient noise levels on the project site reach approximately 72 dBA L_{eq} next to San Antonio Road. As described in Table 4.5-4, residential uses in the 60-75 dBA CNEL or L_{dn} range are considered conditionally acceptable and noise over 75 dBA CNEL or L_{dn} is considered unacceptable. In urban areas near heavy traffic, the peak hourly L_{eq} is typically 2-4 dBA lower than the daily L_{dn} or CNEL. Therefore, exterior noise during peak-hour traffic could reach 74 to 76 dBA CNEL or L_{dn} at the project site, which would verge on the unacceptable range according to Table 4.5-4. In particular, the upper-floor balconies facing San Antonio Road may be exposed to an unacceptable exterior noise level. However, proposed outdoor activity areas would be located in a central courtyard, where the surrounding four-story building would block roadway noise, or on the

rooftop set back from the roofline. Therefore, outdoor activity areas would be shielded from roadway noise.

The use of standard modern building materials also would reduce exterior noise by at least 20 dBA within habitable rooms. In addition, the proposed residential building itself would shield residences in the interior of the site from roadway noise, providing further attenuation of ambient noise. With the reduction of at least 20 dBA in exterior-to-interior noise, it is estimated that new residences facing San Antonio Road would have interior noise levels of up to 56 dBA L_{dn}. Without further noise reduction measures beyond standard building materials, this interior noise level would exceed the City's standard of 45 dBA L_{dn}.

In accordance with Title 24 of the California Code of Regulations and consistent with the Policy N-6.1 of the Comprehensive Plan, the project would be required to attenuate interior noise so that it does not exceed 45 dBA L_{dn} (California Building Standards Commission 2017). To comply with these requirements, the project applicant would be required to design the exterior wall assemblies to achieve interior levels of 45 dBA L_{dn}. Therefore, the proposed building would be constructed to prevent the exposure of new residents to excessive noise.

Mitigation Measures

No mitigation is required.

Threshold 2:	Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Impact N-3 **THE CONSTRUCTION OF PROJECTS IN THE PROGRAM AREA, INCLUDING THE 788 SAN ANTONIO ROAD PROJECT, WOULD INTERMITTENTLY GENERATE GROUNDBORNE VIBRATION. HOWEVER, MAXIMUM VIBRATION LEVELS AT SENSITIVE RECEPTORS AND STRUCTURES WOULD NOT EXCEED APPLICABLE CALTRANS CRITERIA. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

Housing Incentive Program Expansion

Construction of future development under the proposed HIP expansion would intermittently generate vibration on and adjacent to the 18 parcels in the program area. Vibration-generating equipment would include bulldozers and trucks to move materials and debris, and vibratory rollers for paving. It is assumed that pile drivers, which generate strong groundborne vibration, would not be used during construction.

Unlike construction noise, vibration levels are not averaged over time to determine their impact. The most important factors are the maximum vibration level and the frequency of vibratory activity. Therefore, it is appropriate to estimate vibration levels at the nearest distance to sensitive receptors that equipment could be used, even though this equipment would typically be located farther from receptors. This analysis assumes that vibration-generating equipment could be located as close as 25 feet from sensitive receptors adjacent to construction sites in the program area, which is the reference distance for vibration levels provide by Caltrans. Table 4.5-8 estimates vibration levels from equipment at this distance.

Table 4.5-8 Vibration Levels for Construction Equipment at Noise-Sensitive Receptors

Equipment	PPV (in/sec)
	25 feet
Vibratory Roller	0.210
Large Bulldozer	0.089
Loaded Trucks	0.076
Jackhammer	0.035

Source: Caltrans 2013b

As shown in Table 4.5-8, construction activity would generate vibration levels reaching an estimated 0.210 PPV at a distance of 25 feet, if vibratory rollers are used to pave asphalt. Vibration-generating equipment would be operated on a transient basis during construction.

A maximum vibration level of 0.210 PPV during the potential use of vibratory rollers also would not exceed 0.25 PPV, Caltrans' recommended criterion for distinctly perceptible vibration from transient sources. Construction activity that generates loud noises (and therefore vibration) also would be limited to daytime hours on weekdays and Saturdays, which would prevent the exposure of sensitive receptors to vibration during evening and nighttime hours and on Sundays. As a result, it would not result in substantial annoyance to people of normal sensitivity. In addition, the vibration level would not exceed the Caltrans' recommended criterion of 0.5 PPV for potential damage of historic and old buildings from transient vibration sources. Therefore, the impacts of vibration on people and structures would be less than significant.

788 San Antonio Road Mixed-Use Project

Construction of the proposed mixed-use project would intermittently generate vibration on and adjacent to the project site. Vibration-generating equipment would include bulldozers and trucks to move materials and debris and, potentially, vibratory rollers for paving. It is assumed that pile drivers, which generate strong groundborne vibration, would not be used during construction. Construction activity would generate vibration as close as approximately 25 feet from the Sequoia Academy.

As shown in Table 4.5-8, construction activity would generate vibration levels reaching an estimated 0.210 PPV at a distance of 25 feet, if vibratory rollers are used to pave asphalt in the proposed garage. As discussed above, this vibration level would not exceed 0.25 PPV, Caltrans' recommended criterion for distinctly perceptible vibration from transient sources. In addition, it would not exceed the Caltrans' recommended criterion of 0.5 PPV for potential damage of historic and old buildings from transient vibration sources. Therefore, the impacts of vibration on people and structures would be less than significant.

Mitigation Measures

No mitigation is required.

c. Cumulative Impacts

The proposed HIP expansion, 788 San Antonio Road mixed-use project, and related projects in the area, as identified in Table 3-1 in Section 3, *Environmental Setting*, would generate temporary noise and vibration during construction. As discussed in Impact N-1 and Impact N-3, impacts related to noise generated by construction of the proposed project would be less than significant after mitigation and impacts related to groundborne vibration would be less than significant. Construction activities for the cumulative projects in the area would generate similar noise and vibration levels as those under the HIP expansion. Several cumulative projects, including a hotel at 744-750 San Antonio Road and community services space at 4000 and 4120 Middlefield Road and 525 San Antonio Road, would be located within 0.1 mile of the program area. However, construction noise and vibration are localized and rapidly attenuate within an urban environment. It is likely that these cumulative projects would be dispersed in space and time, so as not to result in a perceptibly higher combined noise level from overlapping construction activities. All other cumulative projects would be located at least 0.25 miles from the program area, which is too far to contribute to increases in ambient noise or vibration levels associated with construction in the project area.

Table 4.5-9 shows the proposed HIP expansion's cumulative contribution to traffic volumes on the primary arterial routes in the vicinity of the program area, according to traffic data from TJKM (2020).

Table 4.5-9 Cumulative Contribution to AM Peak Hour Roadway Traffic Levels

Roadway Segment	Background AM Peak Hour Trips	Cumulative + HIP Expansion Increase	Percentage Increase from Cumulative Trips	Percent of Cumulative Increase Due to HIP Expansion
San Antonio Road				
North of Leghorn Street	2,265	2,395	5.7%	7.7%
South of Leghorn Street	2,364	2,599	9.9%	20.7%
Middlefield Road				
West of San Antonio Road	1,609	1,691	5.1%	13.5%
East of San Antonio Road	1,695	1,815	7.1%	29.8%
Charleston Road				
West of San Antonio Road	2,400	2,509	4.5%	2.3%

Source: TJKM 2020; see Appendix H

As shown in Table 4.5-9, cumulative growth in combination with implementation of the HIP expansion would increase background daily traffic volumes by up to approximately 10 percent on San Antonio Road. A 10 percent increase in traffic volume would raise traffic noise by about 0.4 dBA L_{eq}. Sensitive receptors along San Antonio Road in the program area would be subject to this increase in ambient noise, but their sensitivity to increased noise would vary based on distance from the arterial roadway. One sensitive receptor, the Sequoia Academy, is located within 75 feet of the roadway's centerline. A second sensitive receptor, the Central Chinese Christian Church, is located within 90 feet of the centerline. For these receptors, the measurement of peak-hour ambient noise at approximately 72 dBA L_{eq} on the sidewalk of San Antonio Road would be representative as a conservative estimate of existing noise exposure. At this existing noise level, an increase of at least 1 dBA L_{eq} would be significant according to FTA criteria. Because cumulative growth in combination with implementation of the HIP expansion would increase traffic on San Antonio Road by an

estimated 0.4 dBA L_{eq}, the cumulative impact on the Sequoia Academy and Central Chinese Christian Church from increased traffic noise would be less than significant.

It is projected that the HIP expansion would contribute up to approximately 21 percent of the increase in cumulative traffic over background conditions on San Antonio Road if all the parcels within the program area were developed to their maximum potential under the HIP expansion. This contribution of more than one-fifth of overall cumulative growth in traffic volumes on San Antonio Road would be considerable. In effect, vehicle trips generated by the HIP expansion would be responsible for about 0.3 dBA out of the estimated overall 0.4 dBA L_{eq} cumulative increase in traffic noise. Nonetheless, as discussed above, the cumulative impact from increased traffic noise at institutional and educational sensitive receptors along San Antonio Road would be less than significant. As a result, the project would not considerably contribute to a significant cumulative impact in this location.

All existing residential sensitive receptors along San Antonio Road between Charleston Road and Middlefield Road, including the Greenhouse apartment complex, are set back at least 150 feet from the roadway's centerline. Existing peak-hour ambient noise was measured between 61 and 64 dBA L_{eq} at the nearest residences in this complex. Because existing ambient noise is in the 60-65 dBA L_{eq} range, an increase of at least 2 dBA L_{eq} would be significant according to FTA criteria at these sensitive receptors. The estimated 0.4 dBA L_{eq} increase in traffic noise on this roadway would not exceed this level. Therefore, the cumulative traffic noise impact on residential receptors along San Antonio Road would be less than significant.

Cumulative growth with the proposed HIP expansion also would increase the traffic volume on Charleston Road west of San Antonio Road by an estimated 4.5 percent. This would result in a less than 0.4 dBA L_{eq} increase in traffic noise at residences next to Charleston Road. Because existing peak-hour ambient noise was measured at nearly 64 dBA L_{eq} on this road segment, an increase of at least 2 dBA L_{eq} would be significant according to FTA criteria at these sensitive receptors. The estimated increase of less than 0.4 dBA L_{eq} in traffic noise on Charleston Road would not exceed this level. Therefore, the cumulative traffic noise impact on sensitive receptors along Charleston Road would be less than significant.

On Middlefield Road, cumulative growth plus the HIP expansion would increase the existing traffic volume by up to an estimated 7.1 percent, which translates to a less than 0.4 dBA L_{eq} increase in traffic noise. Existing peak-hour traffic noise next to residences on Middlefield Road was measured between 71 and 73 dBA L_{eq}. At this level, an increase of at least 1 dBA L_{eq} would be significant according to FTA criteria. The estimated increase in traffic noise on the Middlefield Road corridor would not exceed 1 dBA L_{eq}. Therefore, the cumulative traffic noise impact on sensitive receptors along this roadway would be less than significant.

Cumulative development would result in stationary (non-traffic) operational noise increases in the project vicinity. Based on the long-term stationary noise analysis, impacts from the proposed project's operational noise would be less than significant. Because noise dissipates as it travels away from its source, noise impacts associated with on-site activities and other stationary sources would be limited to the project site and vicinity. Although several cumulative projects are located within 0.25 mile of the project site, on-site operational noise sources including mechanical equipment, delivery trucks, and trash/garbage trucks would be similar to existing noise from already developed parcels in the program area. Therefore, stationary noise sources from the planned or pending projects would not have a significant cumulative impact at noise sensitive receptors surrounding the project site. The HIP expansion would not result in a considerable contribution to a significant

impact from on-site operational noise. Cumulative operational (non-traffic) noise impacts would be less than significant.

4.6 Transportation

This section analyzes the proposed project's impacts to the local transportation and circulation system as well as impacts related to the change in vehicle miles traveled (VMT). The analysis in this section is primarily based on two transportation studies prepared for the project by TJKM: 1) a study for the proposed Housing Incentive Program (HIP) expansion in the program area (TJKM 2020a, Appendix H), and 2) and a study for the proposed mixed-use development at 788 San Antonio Road (TJKM 2020b, Appendix I)).

4.6.1 Setting

a. Existing Street Network

US-101 is a ten-lane freeway with an east-west orientation in the vicinity of the program area. It runs through the states of California, Oregon, and Washington providing north-south connections to the West Coast. Near the program area, the freeway provides two High Occupancy Vehicle (HOV) lanes and three mixed-traffic lanes in each direction. US-101 provides a partial-cloverleaf and diamond interchange at San Antonio Road, north of the program area.

San Antonio Road is a north-south, four-lane divided arterial that provides access to US-101 to the north, and El Camino Real (State Route 82) and Foothill Expressway to the south. San Antonio Road mainly provides access to residential and commercial land uses, with some institutional and office land uses.

East Charleston Road is a three- to four-lane arterial east of Fabian Way, providing access to US-101 to the east, and is a two-lane residential arterial west of Fabian Way, providing access to Alma Street to the south. East Charleston Road mainly serves residential and commercial land uses.

Middlefield Road is a residential arterial to the west of San Antonio Road, and an arterial to the east of San Antonio Road. The roadway provides four-lanes and runs in the east-west directions near the program area. The roadway extends between the cities of Redwood City to the north and Mountain View to the south, serving a wide variety of land uses.

Leghorn Street is an east-west, two-lane local roadway that extends between San Antonio Road in the west and Sierra Vista Avenue to the east. This roadway mainly provides access to industrial and commercial land uses.

Independence Avenue is a north-south, two-lane local roadway that extends between East Charleston Road in the north and Middlefield Road in the south. The roadway provides access to industrial, commercial and residential land uses.

El Camino Real is a is a six-lane, north-south regional arterial that extends south towards Mountain View and Santa Clara, and north towards Redwood City, Millbrae, and San Bruno. El Camino Real provides access to local and regional commercial areas. El Camino Real has sidewalks on both sides, but no on-street bicycle facilities, and provides on-street parking.

b. Traffic Conditions

Analysis Methodology

This section uses the metric of VMT to analyze transportation-related impacts consistent with Senate Bill 743 and the state CEQA guidelines. Pursuant to California Public Resources Code section 21099(b(2) and CEQA Guidelines Section 15064.3, "a project's effect on automobile delay shall not constitute a

significant environmental impact." Because the City has updated its CEQA thresholds in accordance with state regulations, this analysis does not make significance conclusions with respect to impacts on Level of Service (LOS). However, although LOS is no longer the City's metric for analyzing traffic impacts under CEQA, this section describes traffic operations at the studied intersections in terms of LOS for informational purposes. LOS is a qualitative description of traffic operations from the vehicle driver perspective and consists of the delay experienced by the driver at the intersection. It ranges from LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays. Intersection LOS under existing conditions was analyzed using the TRAFFIX software program.

Vehicle Miles Traveled

"Vehicle miles traveled" refers to the amount and distance of automobile travel "attributable to a project." VMT re-routed from other origins or destinations as the result of a project would not be attributable to a project except to the extent that the re-routing results in a net increase in VMT. Daily VMT per resident is the average number of vehicle miles that a resident in a given area travels per day. One factor that leads to a higher relative daily VMT per resident is an imbalance of jobs and housing availability in an area. Palo Alto is in a part of the Bay Area that has a surplus of jobs relative to the supply of housing. The large supply of jobs in Palo Alto, Mountain View and other neighboring cities results in relatively long commute lengths for many employees, particularly those commuting from residences in the East Bay and San Francisco.

Table 4.6-1 estimates existing home-based VMT per resident for transportation analysis zones (TAZ) bordering San Antonio Road. As shown in this table, the average daily home-based VMT for the six zones near San Antonio Road is 11.19 miles per resident. This means that, on average, each resident near San Antonio Road drives 11.19 miles per day to and from their home.

Table 4.6-1 Average Home-Based Daily VMT per Resident Bordering San Antonio Road

TAZ[1]	Location	Home-Based VMT per Resident
524	North of Charleston Ave (west side of San Antonio Rd)	11.93
477	North of Charleston Ave (east side of San Antonio Rd)	N/A[2]
482	South of Charleston Ave & north of Middlefield Rd (west side of San Antonio Rd)	11.01
456	South of Charleston Ave & north of Middlefield Rd (east side of San Antonio Rd)	14.01[2]
529	South of Middlefield Rd & north of Caltrain (west side of San Antonio Rd)	8.27
409	South of Middlefield Rd & north of Caltrain (east side of San Antonio Rd)	10.72
Average for Zones Bordering San Antonio Road		11.19

[1] TAZ = Transportation Analysis Zone

[2] No residences are located on the east side of San Antonio Rd (north of Charleston Ave).

[3] No residences are located on the east side of San Antonio Road (south of Charleston Avenue & north of Middlefield). The average for TAZ 456 is based on residences near Rengstorff Avenue. VMT attributable to the project is anticipated to be most similar to TAZ 482 on the west side of San Antonio Road.

Source: TJKM 2020a, Appendix H

Level of Service

To analyze the proposed HIP expansion's traffic impacts, traffic conditions were studied at 12 intersections in the vicinity of the program area:

Figure 4.6-1 Intersections in Study Area

1. San Antonio Road & Leghorn Street
2. Independence Avenue & Leghorn Street
3. San Antonio Road & Charleston Road
4. San Antonio Road & Middlefield Road
5. San Antonio Road & Bayshore Parkway
6. San Antonio Road & US-101 NB Off-ramp
7. San Antonio Road & El Camino Real
8. Charleston Road & Fabian Way
9. Charleston Road & Middlefield Road
10. Old Middlefield Way & Middlefield Road
11. Rengstorff Avenue & Middlefield Road
12. Rengstorff Avenue & Leghorn Street

Figure 4.6-1 shows the locations and lane geometries of these intersections. Traffic conditions at the first four intersections listed above were also used to determine the proposed mixed-use project's traffic impacts.

To establish baseline traffic conditions at the studied intersections, turning movement counts were collected during the a.m. and p.m. peak hours on October 17, 2019, and January 15, 2020, both typical weekdays with clear weather. The peak periods were observed between 7:00 a.m. - 9:00 a.m. and 4:00 p.m. - 6:00 p.m. Existing peak hour traffic counts are provided in Appendix H.

This section uses the metric of VMT to analyze transportation-related impacts. Although "Level of Service" (LOS) is no longer the City's metric for analyzing traffic impacts under CEQA, this section also describes traffic operations at the studied intersections in terms of LOS for informational purposes. LOS is a qualitative description of traffic operations from the vehicle driver perspective and consists of the delay experienced by the driver at the intersection. It ranges from LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays. Intersection LOS under existing conditions was analyzed using the TRAFFIX software program.

Existing Intersection Operations

Table 4.6-2 shows existing LOS during both a.m. and p.m. peak hours at the 12 studied intersections. Existing LOS is within the acceptable range for signalized intersections (LOS D or better), Congestion Management Program-monitored roadways (LOS E), and unsignalized intersections (LOS D or better). Appendix H provides the complete LOS modeling results.

Table 4.6-2 Intersection Level of Service under Existing Conditions

			Existing Conditions			
Intersection	Control[1]	Peak Hour[2]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]
San Antonio Road/Leghorn Street	Signal	AM	0.374	15.0	15.5	B
		PM	0.581	19.1	19.5	B
Independence Avenue/Leghorn Street	AWSC	AM	0.371	10.1	10.1	B
		PM	0.701	17.9	17.9	C
San Antonio Road/Charleston Road*	Signal	AM	0.639	42.1	45.9	D
		PM	0.775	35.5	43.2	D

Intersection	Control[1]	Peak Hour[2]	Existing Conditions			
			V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]
San Antonio Road/Middlefield Road*	Signal	AM	0.716	45.9	43.5	D
		PM	0.850	55.0	63.7	E
San Antonio Road/Bayshore Parkway	Signal	AM	0.620	25.7	27.3	C
		PM	0.660	32.0	33.8	C
San Antonio Road/US-101 NB Off-ramp	Signal	AM	0.539	13.2	13.3	B
		PM	0.848	20.6	23.4	C
San Antonio Road/El Camino Real*	Signal	AM	0.738	46.8	47.0	D
		PM	0.737	50.3	50.9	D
Fabian Way/Charleston Road	Signal	AM	0.538	24.2	28.5	C
		PM	0.593	34.6	33.0	C
Middlefield Road/Charleston Road	Signal	AM	0.613	46.1	44.0	D
		PM	0.699	36.9	37.2	D
Middlefield Road/Old Middlefield Way	Signal	AM	0.400	22.3	24.5	C
		PM	0.324	10.4	13.0	B
Middlefield Road/Rengstorff Avenue	Signal	AM	0.654	31.3	30.5	C
		PM	0.609	35.0	33.2	C
Leghorn Street/Rengstorff Avenue	Signal	AM	0.611	31.3	30.5	C
		PM	0.723	36.0	37.2	D

Bold indicates an unacceptable Level of Service

* indicates CMP intersections with a minimum acceptable performance of LOS E

[1]AWSC – All-Way Stop Controlled intersection

[2]AM – morning peak hour, PM – evening peak hour

[3]V/C – Critical volume-to-capacity ratio

[4]Delay – Whole intersection weighted average control delay expressed in seconds per vehicle

[5]Critical movement delay expressed in seconds per vehicle

[6]LOS – Level of Service

Source: TJKM 2020a, Appendix H

c. Transit Access and Circulation

The Santa Clara Valley Transportation Authority (VTA) operates local, express, and rapid transit bus service in Palo Alto. The VTA bus routes 21 and 40 can be accessed from the program area. Bus stops for route 21 are located at the intersection of San Antonio Road and Middlefield Road, immediately bordering the study area. The bus stop for route 40 is located about 0.5 miles away at the intersection of Leghorn Street and Rengstorff Avenue. Table 4.6-3 describes the existing active bus routes in the vicinity of the project area. Figure 4.6-2 shows existing transit routes in the vicinity of the program area.

Figure 4.6-2 Transit Facilities Map

Table 4.6-3 Existing Bus Service Near Program Area

Route	From	To	Weekdays		Weekends	
			Operating Hours	Headway[1] (minutes)	Operating Hours	Headway[1] (minutes)
21	Downtown Mountain View	Stanford Shopping Center	5:30 AM – 10:00 PM	30	8:00 AM – 8:00 PM	45-60
40	La Avenida & Inigo	Foothill College	6:12 AM – 10:44 PM	30-40	8:11 AM – 6:48 PM	45-80

[1] Headway is the amount of time between transit vehicle arrivals at a stop.

Sources: VTA 2019; Appendix H

Commuter rail service (Caltrain) is provided from San Francisco to Gilroy by the Peninsula Joint Powers Board. The closest Caltrain station is located about a mile south of the program area on San Antonio Road. Table 4.6-4 describes the existing train service near the program area.

Table 4.6-4 Existing Train Service Near Program Area

Route	From	To	Weekdays		Weekends	
			Operating Hours	Headway[1] (minutes)	Operating Hours	Headway[1] (minutes)
Caltrain San Antonio Station	San Francisco	Gilroy	4:30 AM – 1:32 AM	20 - 60	7:30 AM – 1:40 AM	60

[1] Headway is the amount of time between transit vehicle arrivals at a stop.

Sources: Caltrain 2020; Appendix H

d. Pedestrian Conditions

Pedestrian facilities include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities. Crosswalks and pedestrian signals are provided on all legs for the signalized intersections of San Antonio Road and Leghorn Street, San Antonio Road and Charleston Street, and San Antonio Road and Middlefield Road in the program area. Pedestrian refuge islands are provided for crossing San Antonio Road on all signalized intersections in the study area. Crosswalks are also provided on all legs of the stop controlled intersection of Leghorn Street and Independence Avenue. A continuous sidewalk network is provided in the vicinity of the program area connecting to nearby institutional, commercial and retail facilities. Figure 4.6-3 shows the network of existing crosswalks and sidewalks.

e. Bicycling Conditions

Bicycle facilities in Palo Alto fit the following four classifications:

- **Bike Paths (Class I)**: Class I bikeways are also referred to as multi-use or shared-use paths. They are physically separated from a roadway by either at least five feet of landscape or an impact barrier. Class I facilities are for exclusive use of non-motorized transportation modes and must have a minimum paved width of eight feet as well as two-foot wide graded shoulders.

- **Bike Lanes (Class II)**: Class II bikeways are striped lanes on roadways for one-way bicycle travel. Class II bike lanes on street segments without parking must be at least four feet wide including any concrete gutter, with at least three feet of asphalt. Bike lanes on streets with parallel parking must be at least five-feet wide.
- **Bike Routes (Class III)**: Class III bikeways are signed bike routes where bicyclists share a travel lane with motorists. Typical applications for Class III bike routes include roadways with bicycle demand but without adequate space for Class II bike lanes, low-volume streets with slow travel speeds, especially those on which volume is low enough that passing maneuvers can use the full street width, and as "gap fillers" for breaks in Class II lanes.
- **Bicycle Boulevards**: Bicycle boulevards, a subset of Class III facilities, are signed, shared roadways with especially low motor vehicle volume, such that motorists passing bicyclists can use the full width of the roadway. In addition, all the unwarranted "stop" signs are removed from the boulevard and placed on cross streets, improving bicyclists' average speed by minimizing unneeded stops.

A Class III bike route is directly accessible from the program area on San Antonio Road, extending between Charleston Road and Middlefield Road. The closest Class II bike lane begins at the intersection of Fabian Way and Charleston Road, about 0.3 miles from the program area. A Class II bikeway is proposed on Charleston Road as per the City of Palo Alto 2030 Comprehensive Plan, to connect the Class III bike route on San Antonio Road to the existing Class II bike lane on Charleston and Fabian Way. The Class II bike lane on Fabian Way provides a direct connection to the Class I multi-use path in the Baylands Preserve area. Figure 4.6-4 shows existing bicycle facilities in the vicinity of the program area.

Figure 4.6-3 Pedestrian Facilities Map

Source: TJKM, 2020.

Figure 4.6-4 Bicycle Facilities Map

Source: TJKM, 2020.

f. Regulatory Framework

This section describes applicable state, regional, and local laws, ordinances, regulations, and standards governing transportation and traffic, which must be adhered to before and during project implementation.

State

State Senate Bill 375

Senate Bill (SB) 375, signed in August 2008, directs each of the state's 18 major Metropolitan Planning Organizations to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, the California Air Resources Board (CARB) adopted final regional targets for reducing greenhouse gas (GHG) emissions from 2005 levels by 2020 and 2035.

The intent of SB 375 is to use the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) to integrate regional land use, regional housing need allocations (RHNA), environmental, and transportation planning to ensure efficient regional planning in the future that leads to reduced greenhouse gas emissions from land and transportation uses. As a result of SB 375, preparation of local RHNA Plans are required to be coordinated and consistent with the RTP/SCS for the length of the housing element cycle. Local governments play a large role in helping to develop the transportation and land use scenarios used in the SCS development process.

State Senate Bill 743

Senate Bill (SB) 743 was signed into law by Governor Brown in 2013 and tasked the State Office of Planning and Research (OPR) with establishing new criteria for determining the significance of transportation impacts under the California Environmental Quality Act (CEQA). SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." It also states that alternative measures of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changes transportation impact analysis as part of CEQA compliance. SB 743 requires the Governor's OPR to identify new metrics for identifying and mitigating transportation impacts within CEQA. In January 2018, OPR transmitted its proposed CEQA Guidelines implementing SB 743 to the California Natural Resources Agency for adoption, and in January 2019 the Natural Resources Agency finalized updates to the CEQA Guidelines, which incorporated SB 743 modifications, and are now in effect. SB 743 changed the way that public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (Public Resource Code, § 21099 (b)(2)). In addition to new exemptions for projects consistent with specific plans, the CEQA Guidelines replaced congestion-based metrics, such as auto delay and level of service, with VMT as the basis for determining significant impacts, unless the Guidelines provide specific exceptions.

California Building Code

California provides minimum standards for building design through the California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The CBC is based on the 1997 Uniform Building Code with modifications specific for California conditions. The CBC provides fire and emergency equipment access standards for public roadways, which include specific width, grading,

design and other specifications for roads which provide access for fire apparatus. Street modifications in the City of Palo Alto are subject to these and other modified State standards. The City of Palo Alto adopted the 2019 edition of the CBC in 2019.

Regional Agencies, Plans, and Policies

Metropolitan Transportation Commission and Association of Bay Area Governments: Plan Bay Area 2040

The Metropolitan Transportation Commission (MTC) serves the nine-county Bay Area as the transportation planning, coordination, and financing agency and the metropolitan planning organization (MPO). The Association of Bay Area Governments (ABAG) serves as a regional planning agency for the Bay Area and provides resources for local governments to accommodate growth trends in land use and housing, environmental protection, and disaster resilience to name a few key issue areas.

MTC, ABAG, and cities and counties throughout the Bay Area prepared the current RTP, *Plan Bay Area 2040*, which was adopted by MTC on July 26, 2017. *Plan Bay Area 2040* is an integrated long-range transportation and land use/housing plan intended to support growth in the Bay Area, provide more housing and transportation choices, and reduce transportation-related pollution. It also includes finance strategies to implement the plan.

State and federal law requires the RTP to be updated at least every four years to respond to emerging regional growth issues and reflect new funding forecasts. The next update to *Plan Bay Area*, called *Plan Bay Area 2050*, is in progress and scheduled to be adopted in summer 2021.

Santa Clara Valley Transportation Authority

The Santa Clara Valley Transportation Authority is an independent special district that provides transportation options throughout Santa Clara Valley, and oversees several transportation programs such as the Congestion Management Program (CMP) and Bicycle Program.

The CMP describes the VTA's strategies for addressing congestion problems and monitoring compliance. The CMP contains level of service (LOS) standards for highways and arterials, multimodal performance standards, a capital improvement program, and a travel demand management (TDM) program (VTA 2017). The City of Palo Alto uses a minimum LOS standard of LOS D for its intersections not monitored as part of the VTA CMP.

The VTA prepared the *Santa Clara Countywide Bicycle Plan* (SCCBP) and Bicycle Technical Guidelines (BTG). The SCCBP provides a foundation for maintaining and enhancing the countywide bicycle network, which contains over 800 miles of bikeways (VTA 2018). The BTG contains standards and provides guidance for planning, designing, operating, retrofitting, and maintaining roadways and bikeways throughout the county and City.

Local Plans and Policies

2030 Comprehensive Plan

The Transportation Element of the City's 2030 Comprehensive Plan (City of Palo Alto 2017a) contains several goals and policies pertaining to the improvement of transportation facilities and reducing project impacts. The following goals, policies, and programs apply to the project:

- **Policy T-1.2**: Collaborate with Palo Alto employers and business owners to develop, implement and expand comprehensive programs like the TMA to reduce single-occupant vehicle commute trips, including through incentives.

  - **Program T1.2.3**: Formalize TDM requirements by ordinance and require new developments above a certain size threshold to prepare and implement a TDM Plan to meet specific performance standards. Require regular monitoring/reporting and provide for enforcement with meaningful penalties for non-compliance. The ordinance should also: […] Require new development projects to pay a Transportation Impact Fee for all those peak-hour motor vehicle trips that cannot be reduced via TDM measures. Fees collected would be used for capital improvements aimed at reducing vehicle trips and traffic congestion.

- **Policy T-1.17**: Require new office, commercial, and multi-family residential developments to provide improvements that improve bicycle and pedestrian connectivity as called for in the 2012 *Palo Alto Bicycle + Pedestrian Transportation Plan*.
- **Policy T-5.1**: All new development projects should manage parking demand generated by the project, without the use of on-street parking, consistent with the established parking regulations. As demonstrated parking demand decreases over time, parking requirements for new construction should decrease.
- **Policy T-5.6**: Strongly encourage the use of below-grade or structured parking, and explore mechanized parking instead of surface parking for new developments of all types while minimizing negative impacts including on groundwater and landscaping where feasible.
- **Policy T-5.7**: Require new or redesigned parking lots to optimize pedestrian and bicycle safety.

Sustainability/Climate Action Plan Framework & 2018-2020 Sustainability Implementation Plan

The City adopted the Sustainability/Climate Action Plan Framework (S/CAP) in November 2016, which is a strategic plan that sets direction and overall goals for the City to reduce GHG emissions to 80 percent below 1990 levels by 2030. To meet the City's reduction target, the S/CAP includes several mobility strategies aimed at developing multimodal transportation options to minimize the use of personal vehicles, encouraging land use patterns that reduce congestion and climate impacts, and promoting electric vehicle charging infrastructure (City of Palo Alto 2016b).

The City's 2018-2020 Sustainability Implementation Plan (SIP) contains specific actions focused around energy use, mobility, electric vehicles, and water use to successfully implement the S/CAP. SIP mobility actions are aimed at reducing single-occupancy vehicle (SOV) travel by encouraging ride sharing, transit use, bike sharing, and providing flexible and responsive first- and last-mile transportation solutions (City of Palo Alto 2016b).

Palo Alto Municipal Code: Title 10 Vehicles and Traffic

Palo Alto Municipal Code Title 10 regulates vehicle and traffic operations within the City, which includes traffic-control devices, pedestrian safety, bicycle safety and designated bike paths, and general vehicle and traffic safety.

4.6.2 Impact Analysis

a. Methodology and Significance Thresholds

Consistent with Appendix G of the State CEQA Guidelines, the project would have a significant impact on transportation if it would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);

3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment); or
4. Result in inadequate emergency access.

Traffic-Related Impacts

To implement SB 743, the CEQA Guidelines have been updated to change the criteria for determining what constitutes a significant traffic-related environmental impact to rely upon quantification of vehicle miles traveled (VMT) instead of LOS. As of July 1, 2020, the VMT-based approach in Section 15064.3 of the CEQA Guidelines applies statewide for the purpose of assessing traffic-related impacts under CEQA. As a result, this analysis uses the metric of VMT to determine the project's traffic-related impact. Section 15064.3(b)(1) of the CEQA Guidelines states that land use "projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact." According to the Technical Advisory on Evaluating Transportation Impacts, published by the Governor's Office of Planning and Research in December 2018, a 15 percent reduction in VMT per capita from existing development is "generally achievable" and supportive of State goals to reduce greenhouse gas emissions (OPR 2018). However, State guidance allows localities to set their own VMT standards based on substantial supporting evidence.

On June 15, 2020, the Palo Alto City Council adopted a resolution setting locally applicable CEQA thresholds of significance for VMT (City of Palo Alto 2020d). Under these new thresholds, redevelopment projects are first analyzed to determine whether the new development would result in a net increase in VMT compared to the existing development. As outlined in the TIS, the proposed HIP expansion, including the 788 San Antonio Project, would result in a net increase in VMT compared to the existing site conditions. Therefore, further analysis was warranted. The TIS therefore analyzed impacts under the HIP expansion for the potential increase in residential development within the program area and also analyzed each component of the mixed-use development at the 788 San Antonio.

A proposed residential project would have a significant impact if VMT attributable to the project exceeds a level of 15 percent below the existing daily home-based VMT per County resident. This threshold is consistent with the State guidance discussed above for evaluating traffic-related impacts. In Santa Clara County, the existing daily home-based VMT is 13.33 miles per resident. Therefore, a significant impact would occur if the project generates an average daily home-based VMT exceeding 11.33 miles per resident, which is equivalent to 15 percent below the existing County metric. For mixed-use projects, each component of a proposed mixed-use project is evaluated independently and the threshold for each project type is applied separately (e.g. residential, and retail). For retail uses, a proposed project that results in a net increase in total (boundary) VMT may indicate a significant transportation impact. However, the City has adopted screening criteria for projects that have already been determined, based on substantial evidence, to have a less than significant impact on VMT. These thresholds are either consistent with, or more conservative than the thresholds recommended by the Office of Planning and Research (OPR). Consistent with the City's screening criteria, small projects (including non-residential projects of 10,000 square feet or less) as well as local-serving retail projects of 10,000 sf or less are considered to have a less than significant impact on VMT. The 788 San Antonio project includes a 1,803 sf local-serving retail space. This retail space is well below the 10,000 sf screening criteria for both small projects and for local-serving retail.

Pursuant to California Public Resources Code section 21099(b(2) and CEQA Guidelines Section 15064.3, "a project's effect on automobile delay shall not constitute a significant environmental impact." Nevertheless, this analysis provides a discussion of the project's effects on background and cumulative LOS conditions for informational purposes, because they are relevant to consistency with City standards for the performance of the circulation system. The following City standards for LOS, which were formally

adopted by the City Council on June 15, 2020, would be applicable to the informational discussion of LOS in this EIR:

- If intersection operations degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F); or
- At intersections with unacceptable operations (LOS E or F), if the critical delay increases by four seconds or more, or the volume-to-capacity (V/C) ratio increases by more than 0.01 or more (City of Palo Alto 2016a).

The City has also adopted LOS E as the minimum overall performance measure for Congestion Management Program (CMP) monitored roadways), consistent with VTA guidelines. LOS D is used as the minimum acceptable operating level at unsignalized intersections. The amount of traffic generated by the project was estimated by applying industry standard trip generation rates to the type and size of new development. Trip generation was estimated at two scales: for potential development throughout the program area, and for the proposed mixed-use development at 788 San Antonio Road. The standard trip generation rates were derived from the Institute of Transportation Engineers (ITE) publication Trip Generation Manual, 10th Edition (2017). These include average rates for "Multifamily Housing Mid-Rise" (ITE Land Use 221) and "Coffee/Donut Shop without Drive-Through Window" (ITE Land Use 936).

The trip generation forecast includes a peak-hour trip reduction of two percent for proximity to transit facilities consistent with the VTA Guidelines. Each of the potential residential sites within the program area is located less than 2,000 feet walking distance from the bus stops on San Antonio Road at Middlefield Road and Charleston Road.

As shown in Table 4.6-6, development in the program area under the proposed HIP expansion could generate up to 4,450 daily vehicle trips, including 294 during the a.m. peak hour and 360 during the p.m. peak hour. As shown in Table 4.6-6, the proposed mixed-use project at 788 San Antonio Road would generate an estimated 1,166 net daily trips, including 131 during the a.m. peak hour and 50 during the p.m. peak hour.

Table 4.6-5 Trip Generation under HIP Expansion

Land Use	Size	Weekday Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Proposed Uses								
Multifamily housing[1]	818 units	4,450	76	218	294	220	140	360

( ) denotes subtraction

[1] Land Use Code 221 (Multifamily Housing Mid-Rise) data from ITE *Trip Generation Manual,* 10th Edition, 2017.

Source: TJKM 2020a, Appendix H

Table 4.6-6 Trip Generation for Proposed 788 San Antonio Road Project

Land Use	Size	Weekday Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Proposed Uses								
Multifamily housing[1]	102 units	555	10	27	37	27	18	45
Internal Trip Reduction[2]		(83)	(3)	(3)	(6)	(4)	(3)	(7)
Subtotal: Residential Trips		**472**	**7**	**24**	**31**	**23**	**15**	**38**
Coffee Shop[3]	1.8030 ksf[4]	1,360	91	91	182	33	32	65
Pass-By Trip Reduction[5]		(408)	(28)	(27)	(55)	(10)	(10)	(20)
Internal Trip Reduction[2]		(83)	(3)	(3)	(6)	(3)	(4)	(7)
Subtotal: Retail Trips		**869**	**60**	**61**	**121**	**20**	**18**	**38**
Gross New Vehicle Trips		**1,341**	**67**	**85**	**152**	**43**	**33**	**76**
Existing Uses								
Commercial/Light Industrial[6]	18 ksf	(175)	(17)	(4)	(21)	(15)	(11)	(26)
Subtotal: Existing Use		**(175)**	**(17)**	**(4)**	**(21)**	**(15)**	**(11)**	**(26)**
Net Project Trips		**1,166**	**50**	**81**	**131**	**28**	**22**	**50**

( ) denotes subtraction

All rates are from Institute of Transportation Engineers, *Trip Generation Manual, 10th Edition, 2017.* Average rates used.

[1] Land Use Code 221 (Multifamily Housing Mid-Rise) data from ITE *Trip Generation* 10th Edition, 2017.

[2] Internal Trip Reduction of up to 15% of the lower trip generator (applied to both uses) is allowed by VTA TIA guidelines to reflect internal trips between the housing and on-site retail.

[3] Land Use Code 936 (Coffee/Donut Shop without Drive-Through Window) data from ITE Trip Generation 10th Edition, 2017.

[4] ksf = thousand square feet

[5] Pass-By Trip Reduction of up to 30% is allowed by VTA TIA guidelines.

[6] Trip generation for the existing land use was provided by Hexagon Transportation Consultants (report dated June 26, 2018).

Source: TJKM 2020b, Appendix I

b. Project Impacts and Mitigation

Threshold 1:	Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Impact T-1 THE PROPOSED HIP EXPANSION AND 788 SAN ANTONIO ROAD MIXED-USE PROJECT WOULD NOT CONFLICT WITH APPLICABLE POLICIES ADDRESSING TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES. THIS IMPACT RELATED TO TRANSIT, BICYCLE AND PEDESTRIAN FACILITIES WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

Transit Facilities

As discussed in the 2030 Comprehensive Plan EIR, travel times for buses are sensitive to traffic congestion (City of Palo Alto 2016a). With greater congestion, it becomes more difficult for bus drivers to merge back into a traffic lane after pulling over to a bus stop. The proposed HIP expansion would facilitate new development in the program area, which would generate new vehicle trips that contribute to traffic congestion. In the vicinity of the program area, VTA routes 32, 25, and 104 pass through the San Antonio Road/Middlefield Road intersection, while VTA route 104 also passes through the San Antonio Road/Charleston Road intersection. As discussed below under Roadway Facilities, each intersection would continue to operate acceptably during peak-hour periods with the addition of project-generated traffic to existing conditions. Therefore, the HIP expansion would not substantially increase delay to transit services.

The 2030 Comprehensive Plan EIR finds that increased long-term development in Palo Alto would not cause transit demand to exceed capacity (City of Palo Alto 2016a). By the year 2040, the only transit service that is likely to approach full capacity is Caltrain, which could operate at 97 percent of capacity. Consistent with this conclusion, although the HIP expansion would increase demand for bus and rail services, it would not increase demand beyond levels anticipated in the 2030 Comprehensive Plan EIR. Therefore, it is expected that additional demand in the program area would not exceed the current or planned capacity of the transit network. As a result, the HIP expansion would not conflict with a program, plan, ordinance, or policy addressing transit facilities.

Roadway Facilities

For informational purposes, Table 4.6-7 shows projected traffic delay and LOS at the 12 studied intersections under background plus HIP expansion conditions. As shown in this table, all intersections are expected to continue operating within minimum applicable performance levels of LOS D and E or better during both a.m. and p.m. peak hours, based on the City's and VTA's applicable standards.

Table 4.6-7 HIP Expansion: Intersection Level of Service under Background Plus Project Conditions

			Background Conditions				Background Plus Project Conditions				
Intersection	Control[1]	Peak Hour[2]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	Acceptable Delay Exceeded?
San Antonio Road/Leghorn Street	Signal	AM	0.474	14.4	15.1	B	0.492	14.6	15.5	B	No
		PM	0.833	27.2	30.4	C	0.870	29.6	33.2	C	No
Independence Avenue/Leghorn Street	AWSC	AM	0.440	11.1	11.1	B	0.592	13.1	13.1	B	No
		PM	0.776	21.5	21.5	C	0.882	29.7	29.7	D	No
San Antonio Road/Charleston Road*	Signal	AM	0.757	46.7	50.3	D	0.767	47.6	50.7	D	No
		PM	0.958	51.5	57.8	D	0.964	52.1	58.9	D	No
San Antonio Road/Middlefield Road*	Signal	AM	0.799	47.6	47.2	D	0.814	48.8	48.9	D	No
		PM	0.856	51.9	59.5	D	0.865	53.2	60.1	D	No
San Antonio Road/Bayshore Parkway	Signal	AM	0.853	36.2	45.4	D	0.873	37.4	48.3	D	No
		PM	0.871	41.8	47.2	D	0.879	42.6	48.2	D	No
San Antonio Road/US-101 NB Off-ramp	Signal	AM	0.539	13.2	13.3	B	0.542	13.3	13.4	B	No
		PM	0.570	12.6	12.7	B	0.588	12.9	13.3	B	No
San Antonio Road/El Camino Real*	Signal	AM	0.891	53.3	56.6	D	0.896	53.8	57.4	D	No
		PM	0.989	64.4	73.3	E	0.991	64.9	74.1	E	No
Fabian Way/Charleston Road	Signal	AM	0.668	26.2	31.4	C	0.669	26.3	31.6	C	No
		PM	0.659	36.3	34.5	D	0.662	36.4	35.4	D	No
Middlefield Road/Charleston Road	Signal	AM	0.627	47.9	45.5	D	0.630	47.9	45.5	D	No
		PM	0.749	38.4	39.6	D	0.751	38.4	39.6	D	No
Middlefield Road/Old Middlefield Way	Signal	AM	0.327	13.4	16.9	B	0.348	14.4	17.9	B	No
		PM	0.360	10.6	13.3	B	0.401	11.0	13.6	B	No
Middlefield Road/Rengstorff Avenue	Signal	AM	0.713	35.5	35.1	D	0.718	35.6	35.4	D	No
		PM	0.588	34.9	33.0	D	0.626	35.3	33.7	D	No
Leghorn Street/Rengstorff Avenue	Signal	AM	0.580	29.2	35.1	C	0.664	33.0	32.3	C	No
		PM	0.788	38.5	40.8	D	0.855	42.2	45.4	D	No

			Background Conditions				Background Plus Project Conditions				
Intersection	**Control[1]**	**Peak Hour[2]**	**V/C[3]**	**Delay[4]**	**Critical Delay[5]**	**LOS[6]**	**V/C[3]**	**Delay[4]**	**Critical Delay[5]**	**LOS[6]**	**Acceptable Delay Exceeded?**

Bold indicates an unacceptable Level of Service

* indicates CMP intersections with a minimum acceptable performance of LOS E

[1]AWSC – All-Way Stop Controlled intersection

[2]AM – morning peak hour, PM – evening peak hour

[3]V/C – Critical volume-to-capacity ratio

[4]Delay – Whole intersection weighted average control delay expressed in seconds per vehicle

[5]Critical movement delay expressed in seconds per vehicle

[6]LOS – Level of Service

Source: TJKM 2020b, Appendix I

Bicycle Facilities

The program area borders an existing Class III bicycle route with shared motor vehicle/bicycle travel lanes on San Antonio Road. The Class III route is included in the City of Palo Alto 2030 Comprehensive Plan (2017) and Bicycle + Pedestrian Transportation Plan (2012) and would remain in its current configuration. New residents in the program area would have direct access to this route on San Antonio Road. The HIP expansion also would not involve right-of-way modifications that would affect existing bicycle facilities or preclude future facilities in the program area. Therefore, the HIP expansion would not conflict with a program, plan, ordinance, or policy addressing existing or planned bicycle facilities.

Pedestrian Facilities

Pedestrian access to each potential development site within the program area is currently provided by existing sidewalks on both sides of San Antonio Road. Signalized intersections bordering the program area have striped crosswalks with pedestrian signal heads across all four approach legs. These intersections provide ADA-compliant curb ramps that are accessible to disabled persons and pedestrian push buttons (PPBs) at all signalized crossings. Crossings on San Antonio Road provide additional PPBs at the medians in case a pedestrian needs additional time to make it across. The HIP expansion also would not involve right-of-way modifications that would affect existing sidewalk and crosswalk access, or preclude the future provision of such access, in the program area. As a result, pedestrian facilities in the program area would provide adequate connectivity and safety for new residents. Therefore, the HIP expansion would not conflict with a program, plan, ordinance, or policy addressing transit, roadway, bicycle, and pedestrian facilities.

788 San Antonio Road Mixed-Use Project

Transit Facilities

The proposed mixed-use project would generate new vehicle trips on roadways, incrementally increasing traffic delay for VTA buses. At intersections through which buses travel, it is estimated that these new trips would increase critical delay by less than one second during both the a.m. and p.m. peak hours. This minimal increase in traffic congestion would not substantially increase delay to transit services. As discussed above, the proposed HIP expansion would not increase demand for bus and rail services beyond the current or planned capacity of the transit network. Because transit demand associated with the 788 San Antonio Road mixed-use project would represent a subset of additional demand in the program area from maximum development under the HIP expansion, project-specific demand also would not exceed transit capacity. Therefore, the proposed mixed-use project would not conflict with a program, plan, ordinance, or policy addressing transit facilities.

Roadway Facilities

For informational purposes, this analysis addresses the 788 San Antonio Road project's effects on traffic delay. The mixed-use project would generate new vehicle trips that contribute to traffic congestion on roadways in the vicinity of the project site. Table 4.6-8 shows projected traffic delay and LOS at the four studied intersections under background plus 788 San Antonio project conditions. As shown in this table, all intersections are expected to continue operating within minimum applicable performance levels of LOS D and E or better during both a.m. and p.m. peak hours, based on the City's and VTA's standards.

Table 4.6-8 788 San Antonio Road Mixed-Use Project: Intersection Level of Service under Background Plus Project Conditions

			Background Conditions				Background Plus Project Conditions				
Intersection	Control[1]	Peak Hour[2]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	Acceptable Delay Exceeded?
San Antonio Road/Leghorn Street	Signal	AM	0.474	14.4	15.1	B	0.508	18.3	19.6	B	No
		PM	0.833	27.2	30.4	C	0.846	28.3	32.0	C	No
Independence Avenue/Leghorn Street	AWSC	AM	0.440	11.1	11.1	B	0.465	11.6	11.6	B	No
		PM	0.776	21.5	21.5	C	0.800	22.7	22.7	C	No
San Antonio Road/Charleston Road*	Signal	AM	0.757	46.7	50.3	D	0.760	46.9	50.5	D	No
		PM	0.958	51.5	57.8	D	0.960	51.6	58.0	D	No
San Antonio Road/Middlefield Road*	Signal	AM	0.799	47.6	47.2	D	0.818	48.6	48.9	D	No
		PM	0.856	51.9	59.5	D	0.857	52.3	59.6	D	No

Bold indicates an unacceptable Level of Service

* indicates CMP intersections with a minimum acceptable performance of LOS E

[1]AWSC – All-Way Stop Controlled intersection

[2]AM – morning peak hour, PM – evening peak hour

[3]V/C – Critical volume-to-capacity ratio

[4]Delay – Whole intersection weighted average control delay expressed in seconds per vehicle

[5]Critical movement delay expressed in seconds per vehicle

[6]LOS – Level of Service

Source: TJKM 2020b, Appendix I

Bicycle Facilities

The project site borders an existing Class III bicycle route with shared motor vehicle/bicycle travel lanes on San Antonio Road. The proposed mixed-use project would provide 11 short-term bicycle parking spaces along with access to e-bike/scooter rentals and 104 long-term bicycle parking spaces. Proposed bicycle parking would be sufficient to meet the City's requirements for new residential development. The mixed-use project also would not affect the configuration of existing and planned bicycle facilities, including the Class III route on San Antonio Road. Therefore, the mixed-use project would not conflict with a program, plan, ordinance, or policy addressing existing or planned bicycle facilities.

Pedestrian Facilities

The project site is located within a 1.1-mile walking distance from the San Antonio Caltrain Station via San Antonio Road, San Antonio Avenue, and Central Expressway. Residents of the proposed mixed-use project may walk or use the e-bikes/scooters to be provided in the courtyard to reach the station. VTA bus route 32 serves the San Antonio Caltrain station and has a stop at the Middlefield Road/San Antonio Road intersection, which is a 0.3-mile walking distance (six-minute walk) from the project site.

As shown in Figure 4.6-3, all signalized intersections near the project site have striped crosswalks with pedestrian signal heads across all four approach legs. The intersections provide ADA-compliant curb ramps and pedestrian push buttons (PPBs) at all signalized crossings. Crossings on San Antonio Road provide additional PPBs at the medians in case a pedestrian needs additional time to make it across. In addition, existing sidewalks on both sides of San Antonio Road and Leghorn Street provide site access for pedestrians. The sidewalks are continuous with curb ramps at driveways and intersections and are five feet in width. The mixed-use project would provide an accessible path of travel connecting the existing sidewalks on San Antonio Road and Leghorn Street to the project site.

Therefore, the mixed-use project would not conflict with a program, plan, ordinance, or policy addressing transit, roadway, bicycle, and pedestrian facilities.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without mitigation. No mitigation measures are required.

Threshold 2:	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Impact T-2 VEHICLE MILES TRAVELED (VMT) ATTRIBUTABLE TO THE HIP EXPANSION AND 788 SAN ANTONIO MIXED-USE PROJECT WOULD NOT EXCEED THE CITY'S THRESHOLDS FOR RESIDENTIAL OR LOCAL SERVING RETAIL PROJECTS. THEREFORE, THE IMPACT RELATED TO VMT WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

The proposed HIP expansion would provide housing growth in a segment of the County that has a surplus of jobs relative to the supply of housing. The large supply of jobs in Palo Alto, Mountain View and other neighboring cities results in relatively long commute lengths for many employees, particularly those commuting from residences in the East Bay and San Francisco. By providing residences closer to employment centers in the Peninsula, additional housing in Palo Alto would help to reduce net VMT at a regional level.

Projects may be screened from requiring a VMT analysis based on location, or other characteristics anticipated to result in low rates of VMT. However, the proposed project was determined to not meet the eligibility for screening as defined by the City of Palo Alto. Therefore, an assessment of VMT impacts was conducted based on the VMT impact criteria adopted by the City of Palo Alto on June 15, 2020.

Where a proposed project replaces VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project impact may be considered less than significant based on the adopted City of Palo Alto standard. However, if the redevelopment project leads to a net overall increase in VMT, the project impact may be considered less than significant only if the proposed new land uses would individually fall below their respective thresholds.

The proposed project would allow up to 818 multi-residential units in the program area, anticipated to be occupied by approximately 1,881 residents, with no change to allowable commercial uses. Therefore, the project would not replace VMT-generating land uses and is not anticipated to result in a net overall decrease in VMT. Based on the anticipated rate of home-based VMT generated by the project (11 miles per resident, as described further below), the 1,881 new residents would thus generate up to 20,700 daily home-based miles. Taking into account the likely reduction in commute distances to work for new residents that would otherwise have commuted from other parts of the region, the net increase in VMT is estimated to be approximately 15,000 daily home-based miles.

Since the redevelopment project leads to a net overall increase in VMT, City of Palo Alto standards specify that the project impact would thus be considered significant if proposed project exceeds the VMT threshold for residential land uses. VMT impacts attributable to residential projects in Palo Alto may be considered significant if a project exceeds a level of 15 percent below existing (baseline) County home-based VMT per resident. Therefore, VMT impacts from the proposed residential development may be considered significant if daily home-based VMT per Resident exceeds 11.33 miles per resident (equivalent to 85 percent of the County home-based VMT average of 13.33 miles per resident).

VMT per Resident for the proposed residential development is anticipated to be similar to existing residential areas bordering San Antonio Road. The existing rate of VMT per Resident for the residential development bordering San Antonio Road was estimated based on the VMT Estimation Tool provided by the City of Palo Alto for use in this analysis. The project site is located within traffic analysis zones (TAZ) 456 and 482. TAZ 456 ion the east side of San Antonio Road is primarily

developed with industrial land uses and has no residences bordering San Antonio Road. (Instead, the few residences within TAZ 456 are located near Rengstorff Avenue).

Project VMT is anticipated to be most similar to the west side of San Antonio Rd (TAZ 482) which has existing multi-family dwellings. To provide an estimate of residential VMT per Resident near San Antonio Road that would be applicable to the proposed project, the average VMT of zones with residences near San Antonio Road was calculated, as described below.

Based on a review of VMT per Resident data for TAZ bordering San Antonio Road as shown on Table 4.6-1, the average daily home-based VMT per Resident for the area near San Antonio Road is 11.19 miles per resident, below the impact threshold. The VMT per Resident for TAZ 456 is applicable to residences located near Rengstorff Avenue, since TAZ 456 has no residences near San Antonio Road, and is therefore is not relevant to predicting VMT attributable to the project.

Project VMT is anticipated to be most similar to the west side of San Antonio Rd (TAZ 482) which has existing multi-family dwellings bordering San Antonio Road and an average home-based VMT per Capita of 11.02 miles per resident, also below the impact threshold. Therefore, the proposed project would generate VMT per Resident at a rate below the impact threshold. VMT impacts attributable to the HIP expansion would be less than significant.

788 San Antonio Road Mixed-Use Project

As discussed above under the analysis for the HIP expansion, the proposed mixed-use project would provide housing in a segment of the County that has a surplus of jobs relative to the supply of housing. The large supply of jobs in Palo Alto, Mountain View and other neighboring cities results in relatively long commute lengths for many employees, particularly those commuting from residences in the East Bay and San Francisco. By contrast, the provision of housing in Palo Alto would help to reduce net VMT at a regional level, by providing residences closer to job locations.

The commercial portion of the proposed development would consist of relatively small-scale ground-floor retail space that would mostly serve local customers as well as pass-by trips on San Antonio Road. Pass-by trips would not generate additional VMT, while local customers would have relatively short trip lengths. The proposed floor area of 1,803 square feet for the retail use also would not exceed the City's applicable screening criteria of 10,000 square feet for local-serving retail.

For the same reasons described above under the analysis for the HIP expansion as a whole, project VMT is anticipated to be most similar to the west side of San Antonio Rd (TAZ 482) which has existing multi-family dwellings bordering San Antonio Road and an average home-based VMT per Capita of 11.02 miles per resident, also below the impact threshold. Therefore, the proposed 788 San Antonio Road project would generate VMT per Resident at a rate below the impact threshold and VMT impacts attributable to the project are would be less than significant.

Therefore, considering both the residential and retail portions of the mixed-use project, it would have a less than significant impact related to conflicts or inconsistency with CEQA Guidelines section 15064.3, subdivision (b) on VMT. Impacts would be less than significant.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without mitigation. No mitigation measures are required.

Threshold 3:	Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

Impact T-3 THE PROPOSED HIP EXPANSION AND 788 SAN ANTONIO ROAD MIXED-USE PROJECT WOULD NOT INTRODUCE DESIGN FEATURES OR INCOMPATIBLE USES THAT COULD INCREASE TRAFFIC HAZARDS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

The proposed HIP expansion would facilitate housing growth on properties in the program area but would not affect the configuration of the roadway network. It would not introduce potentially hazardous design features such as sharp curves or dangerous intersections. Each residential project under the HIP expansion would be reviewed by City staff to ensure that it avoids potential traffic hazards related to access and internal circulation. Additional housing also would not introduce incompatible uses such as agricultural vehicles on roadways. Therefore, the HIP expansion would have a less than significant impact related to traffic hazards.

788 San Antonio Road Mixed-Use Project

The proposed mixed-use project would add residential units and commercial space on a property adjacent to San Antonio Road but would not affect the configuration of this or other roadways. It would not introduce potentially hazardous design features such as sharp curves or dangerous intersections. City staff also would review the mixed-use project to ensure that it avoids potential traffic hazards related to access and internal circulation. Additional housing on this site would not introduce incompatible uses such as agricultural vehicles on roadways. Therefore, the mixed-use project would have a less than significant impact related to traffic hazards.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without mitigation. No mitigation measures are required.

Threshold 4:	Would the project result in inadequate emergency access?

Impact T-4 THE PROJECT WOULD RESULT IN ADEQUATE EMERGENCY ACCESS TO PROPERTIES IN THE PROGRAM AREA AND WOULD NOT SUBSTANTIALLY AFFECT RESPONSE TIMES. THE IMPACT ON EMERGENCY ACCESS WOULD BE LESS THAN SIGNIFICANT.

Housing Incentive Program Expansion

The adequacy of emergency access depends on site access to properties and the response times of emergency vehicles. As discussed in the 2030 Comprehensive Plan EIR, the City and the Fire Department would review specific development proposals to ensure adequate street access for emergency responders (City of Palo Alto 2016a). With regard to response times, traffic congestion has the potential to impede the movement of emergency vehicles. However, as discussed in Impact T-1, development facilitated by the proposed HIP expansion would not result in traffic delay that exceeds the City's standards. Furthermore, emergency vehicles have the right to use lights and sirens to allow them to bypass the congestion (City of Palo Alto 2016a). Even in cases where an intersection or roadway segment is subject to delays exceeding local standards, vehicles are

required by State law to pull over to the right and allow the emergency vehicle to pass. The HIP expansion also would not alter the capacity or configuration of streets on which emergency vehicles travel. Fire trucks and other emergency response vehicles from Fire Station 4 (located approximately 0.75 mile northwest of the program area on Middlefield Road) and other local fire stations would continue to have adequate access to San Antonio Road. Therefore, additional trips generated by residential development in the program area would not significantly impair emergency access. The proposed HIP expansion would have a less than significant impact on emergency access.

788 San Antonio Road Mixed-Use Project

As discussed above, the City and the Fire Department review development proposals to ensure adequate emergency access in accordance with applicable regulations, including the California Building Code and Fire Code. By undergoing this review process, the proposed mixed-use development would provide adequate emergency access from San Antonio Road. The proposed development also would generate fewer vehicle trips than the overall HIP expansion, which would not result in traffic congestion that substantially impedes emergency vehicles on roadways. Therefore, the mixed-use project also would not have an adverse effect on the response times of emergency vehicles. The mixed-use project would have a less than significant impact on emergency access.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, impacts would be less than significant without mitigation. No mitigation measures are required.

c. Cumulative Analysis

Housing Incentive Program Expansion

As discussed in Impact T-2, the HIP expansion would have a less than significant impact related to VMT. Based on technical guidance from the Governor's Office of Planning and Research, if a project has a less than significant impact on VMT using an efficiency-based threshold (e.g., VMT per resident), this implies that the project would not contribute to a cumulative VMT impact (OPR 2018). Therefore, the HIP expansion would not have a considerable contribution to a cumulative VMT impact.

Table 4.6-9 shows projected traffic delay and LOS at the 12 studied intersections under cumulative plus project conditions. As shown in this table, all intersections are expected to continue operating within minimum applicable performance levels of LOS D and E or better during both a.m. and p.m. peak hours, with the exception of the Independence Avenue/Leghorn Street intersection during p.m. peak hours. At this intersection, it is projected that traffic delay would reach LOS E under cumulative plus project conditions.

As a condition of approval, the City would require modifications to the Independence Avenue/Leghorn Street intersection to reduce traffic delay, prior to occupancy of the first project permitted under the HIP expansion, as long as the City of Mountain View approves such work. These modifications would include restriping of the westbound approach to the intersection to provide a westbound right-turn lane, or to provide a de facto right-turn lane by prohibiting curb-side parking during p.m. peak hours on weekdays. With implementation of this condition of approval, the Independence Avenue/Leghorn Street intersection would operate acceptably at LOS C with a V/C of 0.829 and 24.3 seconds of average delay (both overall and for critical movements) during the p.m.

peak hour under cumulative plus project conditions. As a result, all 12 intersections in the study area would have acceptable flow under cumulative plus project conditions.

Because modifications to the Independence Avenue/Leghorn Street intersection would depend upon approval by another jurisdiction, they cannot be guaranteed at this time. Therefore, the HIP expansion could contribute to traffic delay that is unacceptable according to City standards. Nonetheless, as discussed above, California's Third District Court of Appeal ruled that under SB 743, automobile delay may no longer be treated as a significant impact in CEQA analysis (*Citizens for Positive Growth & Preservation v. City of Sacramento*). Therefore, the HIP expansion would not contribute to a significant cumulative impact related to conflicts with policies for roadway facilities.

Table 4.6-9 HIP Expansion: Intersection Level of Service under Cumulative Plus Project Conditions

			Cumulative Conditions				Cumulative Plus Project Conditions				
Intersection	Control[1]	Peak Hour[2]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	Acceptable Delay Exceeded?
San Antonio Road/Leghorn Street	Signal	AM	0.493	14.6	15.4	B	0.511	14.8	15.9	B	N
		PM	0.866	29.3	33.7	C	0.903	32.4	37.5	C	N
Independence Avenue/Leghorn Street	AWSC	AM	0.464	11.4	11.4	B	0.604	13.5	13.5	B	N
		PM	0.831	25.0	25.0	C	**0.943**	**37.3**	**37.3**	**E**	**Y**
San Antonio Road/Charleston Road*	Signal	AM	0.786	47.9	52.0	D	0.796	48.8	52.5	D	N
		PM	0.995	57.2	66.6	E	1.000	58.0	68.0	E	N
San Antonio Road/Middlefield Road*	Signal	AM	0.830	49.1	49.6	D	0.845	50.4	51.5	D	N
		PM	0.889	54.3	63.5	E	0.899	55.9	64.4	E	N
San Antonio Road/Bayshore Parkway	Signal	AM	0.886	38.7	50.5	D	0.905	40.3	54.3	D	N
		PM	0.904	45.2	51.8	D	0.912	46.1	53.1	D	N
San Antonio Road/US-101 NB Off-ramp	Signal	AM	0.559	13.4	13.6	B	0.562	13.5	13.7	B	N
		PM	0.592	12.8	13.1	B	0.610	13.2	13.7	B	N
San Antonio Road/El Camino Real*	Signal	AM	0.925	56.1	60.7	E	0.930	56.7	61.7	E	N
		PM	1.026	70.8	83.3	E	1.029	71.3	84.3	E	N
Fabian Way/Charleston Road	Signal	AM	0.698	26.8	32.4	C	0.700	26.9	32.5	C	N
		PM	0.684	37.0	35.2	D	0.687	37.2	36.1	D	N
Middlefield Road/Charleston Road	Signal	AM	0.652	48.6	46.3	D	0.655	48.6	46.3	D	N
		PM	0.779	39.5	41.1	D	0.782	39.5	41.2	D	N
Middlefield Road/Old Middlefield Way	Signal	AM	0.339	13.5	17.0	B	0.361	14.5	18.0	B	N
		PM	0.374	10.7	13.4	B	0.415	11.0	13.7	B	N
Middlefield Road/Rengstorff Avenue	Signal	AM	0.740	36.3	36.3	D	0.745	36.5	36.6	D	N
		PM	0.611	35.4	33.6	D	0.649	35.8	34.4	D	N

Intersection	Control[1]	Peak Hour[2]	Cumulative Conditions				Cumulative Plus Project Conditions				
			V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	Acceptable Delay Exceeded?
Leghorn Street/Rengstorff Avenue	Signal	AM	0.605	29.7	28.1	C	0.690	33.3	33.7	C	N
		PM	0.819	40.1	42.9	D	0.886	44.7	48.8	D	N

Bold indicates an unacceptable Level of Service

* indicates CMP intersections with a minimum acceptable performance of LOS E

[1]AWSC – All-Way Stop Controlled intersection

[2]AM – morning peak hour, PM – evening peak hour

[3]V/C – Critical volume-to-capacity ratio

[4]Delay – Whole intersection weighted average control delay expressed in seconds per vehicle

[5]Critical movement delay expressed in seconds per vehicle

[6]LOS – Level of Service

Source: TJKM 2020a, Appendix H

788 San Antonio Road Mixed-Use Project

As discussed in Impact T-2, the proposed mixed-use project would have a less than significant impact related to an increase in VMT, because it would allow for reduced travel distances to jobs in the area. Therefore, it would not have a considerable contribution to a cumulative VMT impact.

Table 4.6-10 shows projected traffic delay and LOS at the 4 studied intersections under cumulative plus project conditions. As shown in this table, all intersections are expected to continue operating within minimum applicable performance levels of LOS D and E or better during both a.m. and p.m. peak hours. Regardless, pursuant to California Public Resources Code section 21099(b(2) and CEQA Guidelines Section 15064.3, "a project's effect on automobile delay shall not constitute a significant environmental impact." Therefore, the proposed mixed-use project would not considerably contribute to a significant cumulative impact addressing roadway facilities.

Mitigation Measures

For the 788 San Antonio Road Project and HIP expansion, cumulative impacts would be less than significant without mitigation. No mitigation measures are required.

Table 4.6-10 788 San Antonio Road Mixed-Use Project: Intersection Level of Service under Cumulative Plus Project Conditions

			Cumulative Conditions				Cumulative Plus Project Conditions				
Intersection	Control[1]	Peak Hour[2]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	V/C[3]	Delay[4]	Critical Delay[5]	LOS[6]	Acceptable Delay Exceeded?
San Antonio Road/Leghorn Street	Signal	AM	0.493	14.6	15.4	B	0.544	18.2	20.2	B	N
		PM	0.866	29.3	33.7	C	0.879	30.8	35.8	C	N
Independence Avenue/Leghorn Street	AWSC	AM	0.464	11.4	11.4	B	0.488	12.0	12.0	B	N
		PM	0.831	25.0	25.0	C	0.855	26.6	26.6	D	N
San Antonio Road/Charleston Road*	Signal	AM	0.786	47.9	52.0	D	0.789	48.1	52.1	D	N
		PM	0.995	57.2	66.6	E	0.996	57.4	67.0	E	N
San Antonio Road/Middlefield Road*	Signal	AM	0.830	49.1	49.6	D	0.849	50.2	51.5	D	N
		PM	0.889	54.3	63.5	E	0.891	54.7	63.6	D	N

Bold indicates an unacceptable Level of Service

* indicates CMP intersections with a minimum acceptable performance of LOS E

[1]AWSC – All-Way Stop Controlled intersection

[2]AM – morning peak hour, PM – evening peak hour

[3]V/C – Critical volume-to-capacity ratio

[4]Delay – Whole intersection weighted average control delay expressed in seconds per vehicle

[5]Critical movement delay expressed in seconds per vehicle

[6]LOS – Level of Service

Source: TJKM 2020b, Appendix I

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5 Other CEQA Required Discussions

This section discusses growth-inducing impacts, irreversible environmental impacts, and energy impacts that would be caused by the proposed project.

5.1 Growth Inducement

Section 15126(d) of the CEQA Guidelines requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth inducing potential is therefore considered significant if project-induced growth could result in significant physical effects in one or more environmental issue areas.

5.1.1 Population Growth

As discussed in Section 14, *Population and Housing*, of the Initial Study (Appendix B), the proposed HIP expansion would allow up to 818 new residential units beyond what is currently allowed and, therefore would directly generate population growth. Based on a per-person household rate of 2.3 for the City of Palo Alto (City of Palo Alto 2014), these 818 units would add an estimated 1,881 new residents to the City population. The current population of Palo Alto is estimated at 69,397 (DOF 2019). The addition of new residents from the HIP expansion to the City would therefore increase the population of Palo Alto to 71,278. The Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) estimates that the City's population will increase to 89,100 by 2025, an increase of 22,168 residents (ABAG and MTC 2018). The population increase associated with the proposed HIP expansion would therefore be well within the population forecast for the City.

The city also currently has 29,228 housing units (DOF 2019). The addition of 818 units would bring the total number of housing units to 30,046. The latest ABAG and MTC projections also estimate that the number of housing units in the city in 2040 will be 32,900 (ABAG and MTC 2018). The housing growth associated with the project is well within ABAG projections. Therefore, the proposed project would not substantially induce population growth through the provision of new housing units. In addition, one of the goals of the proposed HIP expansion is to encourage the development of new housing in specific locations to help meet the City's Regional Housing Need Assessment goal. Therefore, while the project would result in population growth, such growth would be consistent with local and regional housing goals.

The proposed 788 San Antonio Road project would include up to 102 new residential units and, therefore, would directly generate population growth. These 102 units would be within the 818 units allowed by the HIP expansion portion of this project, as analyzed in the previous section. Therefore, the proposed 788 San Antonio Road project would not substantially induce population growth through the provision of new housing units.

The proposed 788 San Antonio Road project would also generate approximately five[1] new jobs that could indirectly generate population growth and a greater need for employee housing, not accounting for the removal of two existing commercial buildings. This incremental increase in employment opportunities in the city would not substantially induce population growth through the provision of new jobs. Additionally, it is anticipated that employees would be primarily drawn from existing residents or from nearby communities. No new roads or infrastructure are proposed. Therefore, the project would not result in direct or substantial indirect population growth within the City of Palo Alto or the region.

The project involves redevelopment within a fully urbanized area that lacks significant scenic resources, native biological habitats, surface water, or other environmental resources. Therefore, population growth associated with the project would not result in significant long-term physical environmental effects, other than those already disclosed in this EIR.

5.1.2 Economic Growth

The proposed 788 San Antonio Road project and future development under the HIP expansion would generate temporary employment opportunities during construction. Because construction workers would be expected to be drawn from the existing regional work force, construction of the project would not be growth-inducing from a temporary employment standpoint.

However, the proposed 788 San Antonio Road project would also add long-term employment opportunities associated with operation of a retail space. It is anticipated that employees would be primarily drawn from existing residents or from nearby communities. The potential employment opportunities would be offset by the increase in housing units. Overall, the project would improve the City's job/housing ratio by adding additional housing.

Overall, the proposed project would not be expected to induce substantial economic expansion to the extent that direct physical environmental effects would result.

5.1.3 Removal of Obstacles to Growth

The program area is located in a fully urbanized area that is well served by existing infrastructure. As discussed in Section 19, *Utilities and Service Systems*, of the Initial Study (Appendix B) and Section 4.6, *Transportation,* of this EIR, existing infrastructure in Palo Alto would be adequate to serve the project. Minor improvements to water, sewer, and drainage connection infrastructure could be needed, but would be sized to specifically serve future development under the HIP expansion. No new roads would be required. Because the HIP expansion and 788 San Antonio Road project constitute redevelopment within an urbanized area and does not require the extension of new infrastructure through undeveloped areas, project implementation would not remove an obstacle to growth.

[1] No city, county, or regional employee density rates are available. This analysis assumes 400 square feet per employee (1,779 sf of commercial/400 sf per employee = five employees), based on an employee density rate from the Southern California Association of Governments (2001).

5.2 Irreversible Environmental Effects

The CEQA Guidelines require that EIRs contain a discussion of significant irreversible environmental changes. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed project.

The proposed HIP expansion and 788 San Antonio Road project involves infill development on a currently developed lot in the City of Palo Alto. Construction and operation of the project and future development in the program area would involve an irreversible commitment of construction materials and non-renewable energy resources. Construction would involve the use of building materials and energy, some of which are non-renewable resources. Consumption of these resources would occur with any development in the region and are not unique to the proposed project or future development in the program area.

The proposed 788 San Antonio Road project and future development under the HIP expansion would also irreversibly increase local demand for non-renewable energy resources such as petroleum products and natural gas. However, development would be subject to the energy conservation requirements of the California Energy Code (Title 24, Part 6, of the California Code of Regulations, *California's Energy Efficiency Standards for Residential and Nonresidential Buildings*) and the California Green Building Standards Code (Title 24, Part 11 of the California Code of Regulations). The California Energy Code provides energy conservation standards for all new and renovated commercial and residential buildings constructed in California, and the Green Building Standards Code requires solar access, natural ventilation, and stormwater capture. Consequently, development would not use unusual amounts of energy or construction materials and impacts related to consumption of non-renewable resources would be less than significant. Again, consumption of these resources would occur with any development in the region and is not unique to the proposed project.

Additional vehicle trips associated with the proposed project would incrementally increase local traffic and regional air pollutant and GHG emissions. As discussed in Section 4.1, *Air Quality*, and Section 4.4, *Greenhouse Gas Emissions,* of this EIR, development and operation of the project as well as the proposed HIP expansion would not generate air quality or GHG emissions that would result in a significant impact. Additionally, Section 4.6, *Transportation and Traffic*, of this EIR conclude that long-term impacts associated with the proposed project would be less than significant based on City and regional thresholds.

The project would also require a commitment of law enforcement, fire protection, water supply, wastewater treatment, and solid waste disposal services. However, as discussed in Section 15, *Public Services*, and Section 19, *Utilities and Service Systems*, of the Initial Study, impacts to these service systems would not be significant.

CEQA requires decision makers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. The analysis contained in this EIR concludes that the proposed project would result in a significant and unavoidable impact to cultural resources because it would include demolition of building on the 788 San Antonio project site that is over 45 years of age and that has been deemed eligible for listing on the California Register of Historic Resources. Further, future development in the program area may involve demolition of historical resources. Although the proposed project would implement mitigation, as discussed in Section 4.2 *Cultural Resources*, impacts would remain significant and unavoidable due to this irreversible loss.

5.3 Energy Effects

Public Resources Code Section 21100(b)(2) and Appendix F of the State *CEQA Guidelines* requires an EIR to discuss the potential for a project to result in impacts related to energy consumption and/or conservation. A project may have the potential to cause such impacts if it would result in inefficient, wasteful, or unnecessary consumption of energy, including electricity, natural gas, or transportation fuel supplies and/or resources. Impacts associated with energy use are discussed in Section 4.3, *Energy,* of this EIR and were found to be less than significant.

6 Alternatives

As required by Section 15126.6 of the *CEQA Guidelines*, this EIR examines a range of reasonable alternatives to the proposed project that would attain most of the basic project objectives (stated in Section 2, *Project Description* of this EIR) but would avoid or substantially lessen the significant adverse impacts. Section 15126.6 also requires consideration of a "No Project" alternative, regardless of whether it would achieve the project objectives or lessen its environmental effects.

As discussed in Section 2, *Project Description*, the objectives for the proposed project are as follows:

Housing Incentive Program Expansion Objectives

The following project objectives are specific to the proposed expansion of the Housing Incentive Program (HIP).

1. Update the Palo Alto Municipal Code to remove barriers and disincentives to housing development at higher densities where appropriate near transit, jobs and services.
2. Update the Palo Alto Municipal Code to encourage production of housing that is affordable to a range of income levels.
3. Update the Palo Alto Municipal Code to allow housing production to meet the City of Palo Alto's Regional Housing Needs Assessment (RHNA) goals.

788 San Antonio Road Mixed-Use Project Objectives

The following project objectives are specific to the proposed 788 San Antonio mixed-use development.

1. Develop a high-density residential project to help the City make substantial progress toward its goal of generating 300 housing units per year and improve the jobs housing balance.
2. Develop below market rate housing units to help the City satisfy its regional housing needs allocation of affordable units.
3. Provide at least 1,800 square feet of on-site resident-serving retail.
4. Apply the Housing Incentive Program (HIP) to the property to allow more housing to be developed on this housing opportunity site, as an alternative to the State Density Bonus Law.
5. Provide bicycle parking on the ground level adjacent to the main lobby for ease of access and to encourage the use alternative forms of transportation to nearby employment and transit.

Included in this analysis are three alternatives, including the CEQA-required "no project" alternative, that involve changes to the project that may reduce the project-related environmental impacts as identified in this EIR. Alternatives have been developed to provide a reasonable range of options to consider that would help decision makers and the public understand the general implications of revising or eliminating certain components of the proposed project.

The following alternatives are evaluated in this EIR:

- Alternative 1: No Project
- Alternative 2: Existing 788 San Antonio Road Building to Remain Plus New Building

- Alternative 3: Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area

Detailed descriptions of the alternatives are included in the impact analysis for each alternative. The potential environmental impacts of each alternative are analyzed in Sections 6.1 through 6.4.

6.1 Alternative 1: No Project Alternative

6.1.1 Description

The No Project Alternative assumes that the proposed expansion of the Housing Incentive Program would not be implemented within the program area and that the proposed mixed-use building at the 788 San Antonio Road project site would not be constructed. All existing buildings and uses within the program area would remain under this alternative. This alternative would not fulfill the objectives of the proposed project because the PAMC would not be updated to remove barriers to housing development, new residential units would not be developed to help the city meet its housing supply and affordability goals, new accessible bicycle parking would not be installed, and new retail would not be developed.

6.1.2 Impact Analysis

a. Air Quality

Under Alternative 1, no demolition or construction activities would occur at the project site or within the program area, and the existing buildings and uses within the program area would remain unchanged. Impacts related to air quality would therefore be reduced under this alternative compared to the proposed project. No air quality impacts would occur.

b. Cultural Resources

As described in Section 4.1, *Cultural Resources*, the one-story retail building at 788 San Antonio Road is eligible for listing in the CRHR under Criterion 1 for its association with the California Chrysanthemum Growers Association. Under the No Project Alternative, demolition of existing buildings within the program area including the building at 788 San Antonio Road would not occur, mitigation measures would not be required, and the significant and unavoidable impacts to potential historic resources would be avoided.

In addition, construction within the program area and at the project site would not occur under this alternative, and potential impacts to previously unidentified archaeological resources and human remains would not occur. Therefore, implementation of Mitigation Measure CR-1 and CR-2 identified in the Initial Study (Appendix B of the EIR) would not be required, and no impacts would occur.

c. Energy

Under Alternative 1, no demolition or construction activities would occur at the project site or within the program area, and the fuel used for vehicle trips to and from the existing buildings within the program area would be unchanged. Impacts related to energy would therefore be reduced under this alternative compared to the proposed project. No impact would occur.

d. Greenhouse Gas Emissions

As described above, no construction activities would occur within the program area under this alternative, and vehicle trips in the area would remain unchanged. Greenhouse gas (GHG) impacts under this alternative would be reduced compared to impacts under the proposed project. No impact would occur.

e. Noise

Under the No Project Alternative, the operation of the commercial buildings within the program area would continue unchanged. Therefore, noise levels would not increase compared to existing baseline levels. In addition, since no demolition or construction activities would occur, Mitigation Measure N-1 would not be required. Therefore, noise impacts under the No Project Alternative would be less than impacts under the proposed project. No impacts would occur.

f. Transportation

Under the No Project Alternative, transportation and traffic would remain at current conditions. In addition, there would be no change in the number of vehicle trips associated with the program area, no change in vehicle miles traveled (VMT), and all intersections would continue to operate at their current level of service (LOS). Therefore, overall traffic impacts under the No Project Alternative would be less than impacts under the proposed project. No impacts would occur.

g. Impact Areas Addressed in the Initial Study

Under the No Project alternative, no impacts associated with demolition or construction activities would occur, and impacts related to such activities would therefore be less than impacts associated with the proposed project. Therefore, there would be no impacts related to biological resources, geology and soils, hazards and hazardous materials, or tribal cultural resources, and mitigation measures identified in the Initial Study for these areas would not be required. In addition, no impacts related to hydrology and water quality, population and housing, public services, recreation, and utilities and service systems would occur because no new structures would be constructed, and no population growth or new traffic would be generated. As with the proposed project, no impact to agriculture and forestry resources and mineral resources would occur.

6.2 Alternative 2: Project Site: Existing 788 San Antonio Road Building to Remain Plus New Building

6.2.1 Description

Alternative 2 is an alternative to development at the 788 San Antonio Road project site, and not the proposed HIP expansion. Under this alternative, demolition of the building at 788 San Antonio Road would not occur. Instead, the project applicant would conduct evaluations of the existing building to determine alterations necessary to address disrepair, structural issues, and abatement of hazardous materials and then rehabilitate the structure to accommodate a 6,200 square-foot retail space (this assumes the square footage of the retail space would be the same as the existing square footage of the structure), including a 1,803 square-foot café and a 4,397 square-foot general retail shopping center. Rehabilitation would be completed in conformance with the Secretary of the Interior Standards for Treatment of Historic Properties and in accordance with the California Historic

Building Code, which allows for more flexible application of building regulations when impacting a historic resource. All identified character-defining features of the building would be repaired and maintained in-situ to the highest degree feasible.

As with the proposed development project, this alternative would also involve demolition of the one-story retail building located at 796 San Antonio Road and construction a new building in its place. The new building would be constructed adjacent to the existing rehabilitated building and would include 71 dwelling units. As with the proposed project, the new building under this alternative would include four stories (approximately 50 feet in height) and a subterranean parking structure, which would accommodate approximately 71 parking spaces. While this alternative would provide new housing in Palo Alto, it would provide fewer units to assist in the City's progress towards meeting housing goals.

6.2.2 Impact Analysis

Alternative 2 is an alternative to development at the 788 San Antonio Road project site, and not the proposed HIP expansion. Therefore, the impact analysis for Alternative 2 compares impacts to those of the 788 San Antonio Road project only, and not to the impacts for the HIP expansion as a whole. No change in impact conclusions for the HIP expansion would occur under this alternative.

a. Air Quality

Under Alternative 2, a smaller residential building would be constructed than under the proposed project and less demolition would occur. Construction of the new building would therefore likely occur over a shorter duration. This alternative would also require additional construction and rehabilitation activities for the renovation of the building at 788 San Antonio Road. Construction activities associated with the alternative would therefore be roughly comparable to the proposed project. Impacts associated with construction would be slightly reduced compared to those under the proposed project and would be less than significant.

Because Alternative 2 would involve renovation of a 6,500 square-foot retail space (as opposed to the 1,803 square-foot retail space under the proposed project), a greater number of trips would be generated during operation than under the proposed project. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) The increased vehicle trips would result in greater operational emissions. Therefore, overall impacts would be greater than those associated with the proposed project. Nonetheless, as proposed project emissions are well below applicable thresholds, despite the increase in trips and associated mobile emissions, overall emissions associated with Alternative 2 would also be well below BAAQMD thresholds. Like the proposed project, impacts would be less than significant.

Impacts associated with toxic air contaminants (TACs), carbon monoxide hotspots, and odors would be the same as those under the proposed project for the same reasons as described in Section 4.1, *Air Quality.* These impacts would be less than significant under this alternative, the same as the proposed project.

a. Cultural Resource

As described in Section 4.1, *Cultural Resources*, the one-story retail building at 788 San Antonio Road is eligible for listing in the CRHR under Criterion 1 for its association with the California Chrysanthemum Growers Association. According to the DPR 523 Series form prepared by Page & Turnbull, the other building at the project site (796 San Antonio Road) is ineligible for listing in the

CRHR under any designation criteria. Therefore, because the 788 San Antonio building would not be demolished under this alternative; rehabilitation would be completed in conformance with the Secretary of the Interior Standards for Treatment of Historic Properties; and the character-defining features of the building would be repaired and maintained in-situ to the highest degree feasible, the significant and unavoidable impact associated with the proposed project would be avoided. Mitigation measures CUL-3 and CUL-4 would not be required for this alternative.

c. Energy

As with air quality impacts, energy impacts related to demolition and construction activities under this alternative would be similar to impacts under the proposed project. However, because the retail space in the renovated building would be much larger than the retail space under the proposed project, operation of this alternative would generate a greater number of vehicle trips to and from the project site. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) The increased trips generated under this alternative would require increased use of vehicle fuel. Therefore, impacts related to energy use under this alternative would be greater under this alternative than impacts under the proposed project. Nonetheless, this alternative would not result in the wasteful or inefficient use of energy for the same reasons as described for the proposed project. In addition, this alternative would be consistent with local goals and policies related to energy reduction. As with the proposed project, impacts would be less than significant.

d. Greenhouse Gas Emissions

As with air quality and energy impacts, this alternative would result in slightly reduced impacts related to GHG emissions during demolition and construction activities. However, because the retail space in the renovated building would be much larger than the retail space under the proposed project, operation of this alternative would generate a greater number of vehicle trips to and from the project site. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) Therefore, impacts related to GHG emissions would be greater than those of the proposed project due to overall increase in vehicle trips. Nonetheless, like the proposed project, emissions would be below the applicable efficiency threshold and impacts would be less than significant, the same as under the proposed project.

e. Noise

Under Alternative 2, construction-related noise and vibration would be roughly the same as construction-related impacts under the proposed project. Mitigation Measure N-1 would reduce impacts to a less than significant level. Like the proposed project, operational noise would consistent of truck deliveries, HVAC systems, and other operational noise associated with retail and residential uses. Like the proposed project, impacts associated with operational noise would be less than significant for the same reasons as described in Section 4.5, *Noise.* Although this alternative would result in increased trips compared to the proposed project, and therefore would result in increased noise associated with vehicles traveling to and from the project site, it is not anticipated that the increase in trips would result in significant impacts related to traffic noise. Like the proposed project, this impact would be less than significant.

f. Transportation

Alternative 2 would involve construction and operation of fewer housing units and a larger retail space than under the proposed project. Table 6-1 below compares the number of trips that would be generated under this alternative and under the proposed project. As shown in the table, vehicle trips during operation of this alternative would be greater than trips generated by the proposed project. Alternative 2 would generate an estimated 1,518 weekday trips, including 187 AM peak hour trips and 82 PM peak hour trips. In comparison to the proposed project, this is 661 more weekday trips, 67 more AM peak hour trips and 44 more PM peak hour trips.

Table 6-1 Alternative 2 – Trip Generation Comparison

	Proposed 788 San Antonio Road Mixed-Use Project	Alternative 2 Existing 788 San Antonio Road Building to Remain Plus New Building[1]	Difference
Retail			
Weekday Trips	857	1,518	+661
AM Peak Hour Trips	120	187	+67
PM Peak Hour Trips	38	82	+44
Residential			
Weekday Trips	461	387	-74
AM Peak Hour Trips	30	26	-4
PM Peak Hour Trips	37	32	-5

[1]ITE Trip Generation Code 851 ("Coffee Shop") was used to calculate trips associated with the 1,803 square feet of café space, and Code 820 ("Shopping Center") was used to calculate the other 4,397 retail floor area.

Source: Trip generation rates for land uses Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), 2017

As described in Section 4.6, *Transportation,* a discussion of the alternative's effects on LOS for informational purposes is relevant to consistency with the City's Comprehensive Plan policies for the circulation system. Because it would result in a greater number of trips, this alternative would potentially result in greater congestion at study intersections than those associated with the proposed project. Additional analysis would be required to determine the severity of such congestion, but it is not anticipated that the additional trips would result in substantially worse LOS.

As described in Section 4.6, *Transportation*, the average daily home-based VMT per Resident for the area near San Antonio Road is 11.19 miles per resident, which does not exceed the City's adopted threshold of 11.33 miles per resident. Within this area, it is anticipated that VMT attributable to the residential portion of this alternative would be most similar to the west side of San Antonio Road (TAZ 482), which has existing multi-family dwellings and an average home-based VMT per Capita of 11.02 miles per resident, also below the impact threshold. Therefore, the residential portion of this alternative would generate VMT per Resident at a rate below the impact threshold, and impacts would be less than significant.

Because this alternative would involve construction of a commercial space larger than under the proposed project, VMT associated with commercial space would be greater. However, as with the proposed project, the floor area of 6,500 square feet for retail would not exceed the City's screening criteria of 10,000 square feet for local-serving retail. Therefore, considering both the residential and retail portions, like the proposed project, Alternative 2 would result in a less than significant impact related to conflicts or inconsistency with CEQA Guidelines section 15064.3, subdivision (b) on VMT, the same as the proposed project.

Finally, like the proposed project, this alternative would not conflict with program, plan, ordinance or policy addressing transit, bicycle, or pedestrian facilities for the same reasons described in Section 4.6, Transportation. Like the proposed project, transportation impacts would be less than significant.

g. Impact Areas Addressed in the Initial Study

As with the proposed project, there would be no aesthetic impacts related to scenic vistas and resources, and impacts related to scenic quality, light and glare would be less than significant. There would be no impacts related to agriculture and forestry resources or mineral resources. Moreover, the new development under Alternative 2 would be subject to the development standards, approval requirements, and policies in the PAMC and Palo Alto Comprehensive Plan; there would be no impacts related to land use planning.

Under this alternative, impacts related to demolition and construction activities would be similar to those under the proposed project, and several mitigation measures identified in the Initial Study would reduce impacts to a less than significant level under Alternative 2. Mitigation Measure BIO-1 would reduce impacts to nesting birds and other special status species; Mitigation Measures CR-1 and CR-2 would reduce impacts related to archeological resources; Mitigation Measures GEO-1 and GEO-2 would reduce impacts related to geology, soils, and paleontological resources; Mitigation Measure HAZ-1 would reduce impacts related to exposure to hazardous materials; and Mitigation Measure TCR-1 would reduce impacts related to the discovery of tribal cultural resources.

Under this alternative, 71 new housing units would be developed, which could generate population growth. In addition, the new retail space in the rehabilitated building would provide new employment opportunities, which could also indirectly generate population growth. However, given that this alternative would result in fewer new housing units than the proposed project, the new population generated would be roughly similar to the proposed project. Impacts related to hydrology and water quality, population and housing, recreation, and utilities and service systems would therefore be the same as impacts under the proposed project and would be less than significant.

6.3 Alternative 3: Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area

6.3.1 Description

Alternative 3 is an alternative to the proposed HIP expansion within the program area. As with the proposed project, this alternative would involve amendments of the PAMC to allow changes to development standards for multi-family housing projects within the program area, including elimination of density and retail parking requirements, and waivers to exceed maximum site coverage, to reduce requirements related to preservation of existing retail, and to exceed maximum floor area ratio (FAR). However, under this alternative, the maximum FAR of new housing projects would be 1.5, instead of the 2.0 FAR allowed under the proposed project. Table 6-2 below compares the maximum number of housing units that could be developed in the program area under the proposed project and under Alternative 3.

In addition, because the maximum FAR of new housing projects would be 1.5 instead of 2.0, the proposed 788 San Antonio Road project would only be allowed a maximum FAR of 1.5. Therefore, for the purposes of this alternatives analysis, the 788 San Antonio Road project would be reduced by 27 units (based on the information provided in Table 6-2) to a total of 75 units. The retail space would remain the same.

Under Alternative 3, the project objectives for both the 788 San Antonio mixed-use project and the HIP expansion would be accomplished because a high-density residential development would be constructed and the PAMC would be updated to remove barriers and disincentives to housing development at higher densities and to encourage production of affordable housing. However, under this alternative, fewer new housing units would be allowed. Therefore, Alternative 3 would allow less housing production toward the City's RHNA goals.

Table 6-2 Alternative 3 – Dwelling Unit Comparison

Address	Proposed Project Maximum Number of Units	Alternative 3 Maximum Number of Units	Difference
840 San Antonio	56.05	42.04	- 14.01
910 E. Charleston	54.12	40.59	- 13.53
824 San Antonio	48.37	36.28	- 12.09
816 San Antonio	48.65	36.49	- 12.16
808 - 814 San Antonio	48.09	36.06	- 12.02
800 San Antonio	45.86	34.39	- 11.46
796 San Antonio	51.57	38.68	- 12.89
788 San Antonio	55.21	41.41	- 13.80
780 San Antonio	49.31	36.99	- 12.33
762 San Antonio	96.91	72.69	- 24.23
760 San Antonio	70.67	53.00	- 17.67
744 - 750 San Antonio	0.00	0.00	- 0.00
720 San Antonio	48.60	36.45	- 12.15
708 - 710 San Antonio	25.33	19.00	- 6.33
705 San Antonio	61.95	46.46	- 15.49
4201 Middlefield	6.61	4.96	- 1.65
4227 Middlefield	26.35	19.77	- 6.59
4233 Middlefield	24.29	18.22	- 6.07
Total	**818**	**614**	**- 204**

6.3.2 Impact Analysis

a. Air Quality

Under Alternative 3, the HIP would be expanded to apply to the parcels within the program area, including the project site, at a lower density than under the proposed project. Given that this alternative would allow development of higher-density housing than is currently allowed in the program area, demolition and construction activities under this alternative would be similar to those under the proposed project, although fewer units would be constructed. Overall, air pollution

emissions associated with construction would be slightly reduced compared to the proposed project. Like the proposed mixed-use project, development of the 788 San Antonio project site would result in construction emissions below emissions thresholds, and impacts would be less than significant. However, because it cannot be guaranteed that future development projects in the program area under this Alternative would result in construction emissions below thresholds, Mitigation Measure AQ-1 would be required. Like the proposed project, impacts would be less than significant with mitigation.

This alternative would involve 204 fewer potential new units within the program area, including 27 fewer new units within the 788 San Antonio Road project site. Given this reduction in density, this alternative would result in fewer operational vehicle trips than those associated with the proposed project. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) The decreased vehicle trips would result in decreased air emissions during operation of Alternative 3. Therefore, overall air quality impacts would be less than those associated with the proposed project. Emissions would remain below BAAQMD thresholds and impacts would be less than significant for both the program area and the 788 San Antonio project site.

Impacts associated with TACs, carbon monoxide hotspots, and odors would be the same as those under the proposed project for the same reasons as described in Section 4.1, *Air Quality.* These impacts would be less than significant under this alternative, the same as the proposed project.

b. Cultural Resources

As described in Section 4.2, *Cultural Resources*, the building at 788 San Antonio Road is eligible for listing on the CRHR for its association with the California Chrysanthemum Growers Association. Under Alternative 3, the building would be demolished to allow for the construction of a mixed-use building at the project site. Moreover, although no other historic resources have been identified in the program area such that they are listed on the City's Historic Inventory or the CRHR or NRHR, there is a potential for additional eligible historical resources to be present in the program area. Therefore, because Alternative 3 would continue to allow for demolition or alteration of existing buildings within the program area and demolition of the 788 San Antonio Road building to allow for multi-family residential development, impacts to historical resources would continue to occur. As with the proposed project, Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would reduce impacts related to historical resources. However, impacts would remain significant and unavoidable.

c. Energy

This alternative would result in fewer units constructed within both the project site and the program area. Therefore construction activities, trips, and duration under this alternative be reduced compared to the proposed project. In addition, because this alternative would allow a lower density than the proposed 788 San Antonio mixed-use project at the project site and the proposed HIP expansion in the program area, this alternative would generate fewer vehicle trips associated with operation of the new housing. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) The decreased trips generated under this alternative would require decreased use of vehicle fuel. Therefore, impacts related to energy use under this alternative would be reduced under this alternative than impacts under the proposed project. Overall, this alternative would not result in the wasteful or inefficient use of energy for the same reasons as described for the proposed project. In addition, this alternative would be consistent with local goals and policies related to energy reduction. As with the proposed project, impacts related to energy use would be less than significant.

d. Greenhouse Gas Emissions

GHG emissions associated with operation of future uses under this alternative would be reduced compared to the proposed project because this alternative would involve fewer operational vehicle trips. (See subsection f, *Transportation*, below for a discussion of transportation-related impacts.) The decreased trips generated under this alternative would therefore result in less GHG emissions compared to the proposed project, including the HIP expansion and the 788 San Antonio Road mixed-use project. Like the proposed project, emissions would be below the applicable efficiency threshold and the HIP expansion would be consistent with the 2017 Scoping Plan. Overall, this alternative would result in less than significant GHG impacts, the same as under the proposed project.

e. Noise

Under Alternative 3, construction-related noise and vibration would be slightly reduced compared to the proposed project as fewer units would be constructed. Nonetheless, Mitigation Measure N-1 is required and would reduce impacts to a less than significant level. Like the proposed project, including HIP expansion and the 788 San Antonio mixed-use project, operational noise would consistent of truck deliveries, HVAC systems, trips to and from the program area, and other operational noise associated with retail and residential uses. This alternative would result in a reduction of vehicle trips and therefore would reduce noise associated with traffic compared to the proposed project. Like the proposed project, impacts associated with operational noise would be less than significant for the same reasons as described in Section 4.5, *Noise.*

f. Transportation

Table 6-3 shows trip generation under this alternative. As shown in the table, this alternative would generate fewer trips than the proposed project within the program area. This alternative would generate an estimated 3,340 weekday trips, including 221 AM peak hour trips and 270 PM peak hour trips. This is 1,021 fewer weekday trips, 67 fewer AM peak hour trips and 83 fewer PM peak hour trips compared to the proposed HIP expansion. Moreover, under this alternative, the 788 San Antonio mixed-use project would involve fewer residential units and the same retail space as under the proposed project.

Table 6-3 Alternative 3 – Trip Generation Comparison

	Proposed Housing Incentive Program	Alternative 3 Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area	Difference
Weekday Trips	4,361	3,340	-1,021
AM Peak Hour Trips	288	221	-67
PM Peak Hour Trips	353	270	-83

Source: Trip generation rates for land uses Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), 2017

As described in Section 4.6, *Transportation,* a discussion of the alternative's effects on LOS for informational purposes is relevant to consistency with the City's Comprehensive Plan policies for the circulation system. Because it would result in fewer trips, this alternative would potentially result in reduced congestion at study intersections compared to those associated with the proposed project.

Additional analysis would be required to determine the extent of decrease in congestion. Nonetheless, the consistency with applicable policies and plans would be less than those of the proposed project due to overall decrease in vehicle trips.

As described in Section 4.6, *Transportation*, the average daily home-based VMT per Resident for the area near San Antonio Road is 11.19 miles per resident, which does not exceed the City's adopted threshold of 11.33 miles per resident. Within this area, it is anticipated that VMT attributable to the HIP expansion, including under Alternative 3, would be most similar to the west side of San Antonio Road (TAZ 482), which has existing multi-family dwellings and an average daily home-based VMT per Capita of 11.02 miles per resident, also below the impact threshold. Therefore, like the proposed project, Alternative 3 would result in a less than significant impact related to conflicts or inconsistency with CEQA Guidelines section 15064.3, subdivision (b) on VMT.

Finally, like the proposed project, this alternative would not conflict with program, plan, ordinance or policy addressing transit, bicycle, or pedestrian facilities for the same reasons described in Section 4.6, *Transportation.* Like the proposed project, transportation impacts would be less than significant.

g. Other Impact Areas

As with the proposed project, there would be no aesthetic impacts related to scenic vistas and resources, and impacts related to scenic quality, light and glare would be less than significant. There would be no impacts related to agriculture and forestry resources or mineral resources. Moreover, the new development under Alternative 3 would be subject to the development standards, approval requirements, and policies in the PAMC and Palo Alto Comprehensive Plan; there would be no impacts related to land use planning.

Under this alternative, impacts related to demolition and construction activities would be similar to those under the proposed project, and several mitigation measures identified in the Initial Study would reduce impacts to a less than significant level under Alternative 2. Mitigation Measure BIO-1 would reduce impacts to nesting birds and other special status species; Mitigation Measures CR-1 and CR-2 would reduce impacts related to archaeological resources; Mitigation Measures GEO-1 and GEO-2 would reduce impacts related to geology, soils, and paleontological resources; Mitigation Measure HAZ-1 would reduce impacts related to exposure to hazardous materials; and Mitigation Measure TCR-1 would reduce impacts related to the discovery of tribal cultural resources.

Under Alternative 3, up to 614 new housing units would be allowed in the program area, including up to 75 units at the 788 San Antonio Road project site. Such a development could generate population growth. Moreover, the proposed retail space would remain a part of the proposed 788 San Antonio Road mixed-use project under this alternative; this retail space would increase employment opportunities in Palo Alto, which could indirectly generate population growth. However, because the new population generated under this alternative would be less than the population generated under the proposed project, impacts related to population growth would not be greater. Impacts related to hydrology and water quality, population and housing, recreation, and utilities and service systems would therefore be less than significant.

6.4 Environmentally Superior Alternative

Table 6-4 and Table 6-5 indicate whether each alternative's environmental impact is greater than, less than, or similar to that of the proposed project for each of the issue areas studied. Based on the

alternatives analysis provided above, Alternative 1 (No Project) would be the environmentally superior alternative. However, Alternative 1 would not achieve the basic project objectives as stated in at the beginning of this section. Under this alternative, the Palo Alto Municipal Code would not be updated to remove barriers to housing development at higher densities, to encourage production of affordable housing, or to allow housing production to meet the City's RHNA goals. In addition, no housing units, resident-serving retail, or easily accessible bicycle parking would be developed at the 788 San Antonio Road project site.

Under Alternative 2 (Project Site: Existing 788 San Antonio Road Building to Remain Plus New Building) the CRHR-eligible building at 788 San Antonio Road would not be demolished, and the unavoidably significant impact related to cultural resources would not occur. However, operation of 6,500 square feet of retail space would increase vehicle trips compared to the proposed project and therefore would result in greater impacts related to air quality, GHG emissions, and transportation. Alternative 2 would meet most of the objectives for the 788 San Antonio Road project, but it would not develop as many residential units to assist with the City's progress toward its goal of generating 300 housing units per year and improve the jobs housing balance.

Because Alternative 3 (Program Area: Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area) would reduce vehicle trip generation, it would result in reduced impacts related to air quality, GHG emissions, and transportation. Nevertheless, impacts related to historical resources from the potential demolition or impairment of the building at 788 San Antonio Road would remain. Alternative 3 would meet most of the program objectives, but it would not develop as many residential units to assist with the City's progress towards the City's RHNA goals.

Overall, Alternative 2 is environmentally superior because it would eliminate the unavoidably significant cultural impact associated with demolition of an eligible historical resource.

Table 6-4 Impact Comparison of Alternatives – 788 San Antonio Road Mixed-Use Project

Issue	Proposed 788 San Antonio Road Mixed-Use Project Impact Classification	Alternative 1 No Project	Alternative 2 Existing 788 San Antonio Road Building to Remain Plus New Building	Alternative 3 Expand the HIP to Allow Floor Area Ratio of 1.5 within the Program Area
Air Quality	Less than Significant	+	-	+
Cultural Resources	Significant and Unavoidable	+	+	=
Energy	Less than Significant	+	=	+
Greenhouse Gas Emissions	Less than Significant	+	-	+
Noise	Less than Significant with Mitigation Incorporated	+	=	+
Transportation	Less than Significant	+	-	+

+ Superior to the proposed project (reduced level of impact)
- Inferior to the proposed project (increased level of impact)
= Similar level of impact to the proposed project

Table 6-5 Impact Comparison of Alternatives – Housing Incentive Program

Issue	Proposed Housing Incentive Program Expansion Impact Classification	Alternative 1 No Project	Alternative 3 Expand the Housing Incentive Program to Allow Floor Area Ratio of 1.5 within the Program Area
Air Quality	Less than Significant with Mitigation Incorporated	+	+
Cultural Resources	Significant and Unavoidable	+	=
Energy	Less than Significant	+	=
Greenhouse Gas Emissions	Less than Significant	+	+
Noise	Less than Significant with Mitigation Incorporated	+	=
Transportation	Less than Significant with Mitigation Incorporated	+	+

+ Superior to the proposed project (reduced level of impact)
- Inferior to the proposed project (increased level of impact)
= Similar level of impact to the proposed project

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