DVC PLAZA AND HOOKSTON STATION AMENDMENTS TO THE PLEASANT HILL COMMONS REDEVELOPMENT PLAN

Final Environmental Impact Report Reflecting Errata

Volume 1

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Preface

This document, in its entirety (Volumes 1 and 2), constitutes the Final Environmental Impact Report (Final EIR) for the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan project. All "projects" within the State of California are required to undergo an environmental review to determine the environmental impacts associated with implementation of the project in accordance with the California Environmental Quality Act (CEQA). CEQA was enacted in 1970 by the California Legislature to disclose to decision makers and the public the significant environmental effects of proposed activities and the ways to avoid or reduce the environmental effects by requiring implementation of feasible alternatives or mitigation measures. CEQA applies to all California government agencies at all levels, including local agencies, regional agencies, and state agencies, boards, commissions, and special districts. As such, the City of Pleasant Hill Redevelopment Agency (Agency) is required to conduct an environmental review to analyze the potential environmental effects associated with the Proposed Project. The Agency is the lead agency for the preparation of this EIR in accordance with CEQA.

It is important to note that subsequent to preparation of the Draft EIR, the Hookston Station Area was removed from the proposed added area. On August 12, 2008, the City Planning Commission recommended that the Plan Amendment be adopted, on the condition that the Hookston Station Area be deleted from the proposed added area. On August 18, 2008, the Redevelopment Agency Board approved the Planning Commission's proposed changes and approved revision to the proposed Plan Amendment necessary to delete the Hookston Station Area from the proposed added area. To the extent that existing conditions, impacts and mitigation measures addressed in this EIR relate to conditions in the Hookston Station Area, such materials and analyses are no longer applicable.

This DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan EIR is composed of two volumes. They are as follows:

Volume 1 **DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan EIR and Technical Appendices**—This volume describes the existing environmental setting in and around the proposed project areas; analyzes the potential impacts on that setting due to implementation of the project; identifies mitigation measure that could avoid or reduce the magnitude of significant impacts; evaluates cumulative impacts that would be caused by the project in combination with other future projects or growth that could occur in the region; analyzes growth-inducing impacts; and provides a full evaluation of the alternatives to the proposed project that could eliminate, reduce, or avoid project-related impacts.

Volume 2 **Draft EIR Text Changes, Responses to Comments, and Mitigation Monitoring Program** – This volume contains an explanation of the format and content of the Final

EIR; all Draft EIR text changes; a complete list of all persons, organizations, and public agencies that commented on the Draft EIR; copies of the actual comment letters; the transcript from the public hearing; the Lead Agency's responses to all comments; and the Mitigation Monitoring Program (MMP).

CHAPTER 1 Executive Summary

1.1 PURPOSE OF THE SUMMARY

This summary is intended to highlight the major areas of importance in the environmental analysis for the proposed DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan (proposed project), as required by Section 15123 of the *California Environmental Quality Act* (CEQA) Guidelines. This summary includes a brief description of the proposed project, project objectives, community/agency issues, purpose of the Mitigation Monitoring and Reporting Program, and a summary of the alternatives to the proposed project. In addition, this chapter also provides a table summarizing impacts associated with the proposed project including (1) the potential environmental impacts that would occur as a result of the project; (2) the level of significance before mitigation measures; (3) the recommended mitigation measures that avoid significant environmental impacts; and (4) the level of significance after mitigation measures are implemented.

It is important to note that the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan EIR is a program-level environmental assessment that evaluates the potential physical environmental effects of implementation of the proposed amendments, as a whole. With respect to individual development projects that may be proposed within the project areas, Section 15168(c) of the CEQA Guidelines states that subsequent activities should be examined in light of the Program EIR to determine whether additional environmental documentation must be prepared. If a later activity would have effects that were not examined in the Program EIR, subsequent environmental documentation must be prepared, consistent with Sections 15162 through 15164 of the CEQA Guidelines. As such, any development proposals undertaken within the boundaries of the project areas must be approved individually by the City of Pleasant Hill and undergo their own project-level environmental review, in compliance with CEQA.

1.2 PROJECT LOCATION

The project area is located in the City of Pleasant Hill in Contra Costa County, as shown on Figure 1-1 (Project Location Map). The project area consists of two separate areas: the 49.50-acre DVC Plaza Area, which extends eastward from Old Quarry Road to Contra Costa Boulevard between Chilpancingo Parkway and Golf Club Road, including the Contra Costa County Flood Control channel (also known as the Grayson Creek flood control channel) and the area bordered by College Drive, College Way, Contra Costa Boulevard, and Golf Club Road; and the 13.05-acre Hookston Station Area, which extends in a southerly direction from Hookston Road to Mayhew Way between Vincent Road and the former SPRR right-of-way. It should be noted that the acreages listed in the Initial Study/Notice of Preparation (IS/NOP) of the EIR (included as Appendix A) have been amended to reflect the actual land area. The acreages shown here were taken from Agency and City maps and legal descriptions of the two areas.

1.3 PROJECT OBJECTIVES

The general intent of the Pleasant Hill Redevelopment Agency (PHRA) is to eliminate blight conditions within the DVC Plaza Area and Hookston Station Area and promote, directly or indirectly, new development and the revitalization of existing land uses in the proposed project area, within the requirements and provisions of the Pleasant Hill General Plan, adopted in 2003. Objectives of the proposed project include the following:

- Renew and create economic stimulation within the Pleasant Hill Commons Project Area in order to create an environment that will establish this area as a center of community activity.
- Create a functioning balance of commercial (retail and office), residential, industrial, and public space that will re-establish aesthetic, economic, and social viability of the Pleasant Hill Commons Area.
- Increase visibility of DVC Plaza from Contra Costa Boulevard and Golf Club Road.
- Provide assistance to property owners, business owners, and others in the improvement and redevelopment of their properties.
- Redevelop DVC Plaza with a mix of commercial, residential, and public uses.
- Continue to increase, improve, and preserve affordable low and moderate income housing in the community, and to provide such housing in the income and age categories needed based on the City's share of the region's needs.
- Restore habitat and improve public access, including the addition of pedestrian walkways along Grayson Creek.
- Improve pedestrian and vehicular circulation within and around the project areas.
- Strengthening of commercial and industrial functions.
- Provision of adequate land for parking and open spaces.
- Replanning, redesign, and development of areas which are stagnant or improperly utilized.
- Assembly of land into parcels.
- Installation of needed public improvements.

1.4 PROJECT DESCRIPTION

The proposed project consists of the adoption and implementation of an Amendment to the Pleasant Hill Commons Redevelopment Plan to include the DVC Plaza and Hookston Station areas. Redevelopment of the project area, as proposed, includes a net increase of approximately 167,417 square feet (sf) of commercial/retail/limited industrial space and 300 residential units. Table 1-1 identifies the parcels included within the proposed redevelopment areas, as well as potential gross building square footage and the net change compared to existing conditions.

Table 1-1 Existing and Proposed Land Uses

Assessor's Parcel Number	*Existing Use*	*Parcel Size*	*Building Size*	*Potential Future Use*	*Potential Building sf. (@.4 FAR)**	*Change from Existing*
DVC PLAZA SUBAREA						
153-081-012	Offices (Citibank)	15,682	2,736	College Park Shopping Center	39,552	21,074
153-087-014	Commercial (7-11)	10,454	2,622			
153-081-015	Commercial (Shop. Ctr.)	72,745	13,120			
153-300-001	Commercial (K Mart)	462,607	97,020	Commercial/Residential Mixed-Use Project	250,000 Commercial Plus 300 Dwelling Units**	58,717 Plus 300 Dwelling Units
153-300-002	Commercial (McDonalds)	29,185	5,080			
153-300-003	Commercial (DVC Plaza)	293,594	76,383			
153-300-004	Commercial (DVC Plaza)	32,234	12,800			
153-300-005	Chilpancingo Park	70,567	—	Park	—	—
153-270-001	Office (Office Bldg)	16,117	5,213	Commercial	6,447	1,234
153-270-002	Comm. (Shell Gas/Car Wash)	24,829	1,916	Commercial	9,932	8,016
153-270-003	Commercial (Denny's)	30,056	3,954	Commercial	12,022	8,068
153-270-004	Offices (Bank/Offices)	43,996	22,680	Commercial	17,598	(5,082)
153-270-006	Commercial (Lazy Boy)	36,155	14,359	Commercial	14,462	103
153-270-007	Comm. (Chevron/Car Wash)	17,424	1,056	Commercial	6,970	5,914
153-270-010	Commercial (Kinko's)	27,225	8,436	Commercial	10,890	2,454
153-270-011	Commercial (Carrow's)	67,954	5,240	Commercial	27,182	21,942
153-270-013	Commercial (Wild Birds)	31,363	5,935	Commercial	12,545	6,610
153-270-014	Commercial (Shop. Ctr.)	92,783	22,538	Commercial	37,113	14,575
153-270-015	Commercial (Giant Chef)	12,632	1,215	Commercial	5,053	3,838
				Total	*449,766 sf Commercial Plus 300 Dwelling Units*	*147,463 sf Commercial Plus 300 Dwelling Units*

Table 1-1 Existing and Proposed Land Uses

Assessor's Parcel Number	Existing Use	Parcel Size	Building Size	Potential Future Use	Potential Building sf. (@.4 FAR)*	Change from Existing
HOOKSTON STATION SUBAREA						
148-371-010	Comm./Light Ind.	25,265	8,338	Comm./Light Ind.	10,106	1,768
148-371-011	Comm./Light Ind.	65,776	22,327	Comm./Light Ind.	26,310	3,983
148-371-012	Comm./Light Ind.	44,431	24,808	Comm./Light Ind.	17,772	(7,036)
148-371-013	Comm./Light Ind.	43,560	22,576	Comm./Light Ind.	17,424	(5,152)
148-371-014	Comm./Light Ind.	40,075	2,010	Comm./Light Ind.	16,030	14,020
148-371-015	Comm./Light Ind.	69,696	33,033	Comm./Light Ind.	27,878	(5,155)
148-360-028	Comm./Light Ind.	140,699	38,754	Comm./Light Ind.	56,280	17,526
				Total	*171,800 sf Commercial/Limited Industrial*	*19,954 sf Commercial/Limited Industrial*

SOURCE: Pleasant Hill Redevelopment Agency, 2008; PBS&J, 2008.

* Zoning Ordinance allows a Gross Floor Area Ratio of .4 for Commercial and Limited industrial uses, meaning total building square footage may be .4 of parcel size.

** Maximum allowable development stipulated by City.

All property in the project area would be subject to the redevelopment authority of the Agency, and could be subject to redevelopment activities, such as improvements to existing infrastructure and buildings, as well as demolition and new construction activities consistent with objectives of the Redevelopment Plan. The specific redevelopment activities would be determined at a later date and would be dependent upon the availability of land and financial feasibility. Although the Agency intends on developing certain economic development, community enhancement and housing programs and projects to provide assistance, where needed to eliminate blight conditions and increase, improve or preserve low and moderate income housing, currently the Agency has no project-specific plans for redevelopment within either the DVC Plaza or Hookston Station Areas.

1.5 COMMUNITY/AGENCY ISSUES

This EIR addresses issues that are known or were raised by agencies or interested parties during the 30-day public review period for the Notice of Preparation (see Appendix A for a copy of the NOP) with respect to the environmental resources associated with the proposed project. These issues include the following:

- Provisions for alternative modes of transportation
- Proximity to Buchanan Field Airport
- Provision of open space
- Increases in traffic volumes

1.6 MITIGATION MONITORING AND REPORTING PROGRAM

CEQA requires that a public agency adopt a Mitigation Monitoring and Reporting Program (MMRP) for mitigation measures that have been incorporated into the project to reduce or avoid significant effects on the environment. The MMRP will be included as part of the Final EIR, and will be designed to ensure compliance during project implementation, as required by *Public Resources Code* Section 21081.6.

This EIR discusses feasible mitigation measures (MMs) that would be implemented to reduce significant environmental impacts. In addition, existing City programs, practices, and procedures that currently reduce environmental impacts would be continued throughout the proposed project planning horizon. The MMRP for the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan, which obligates the Agency and City to implement MMs, will be prepared by the Agency and reviewed by the Agency and City in conjunction with consideration of the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan and certification of the Final EIR.

1.7 ALTERNATIVES

In accordance with Section 15126.6 of the CEQA Guidelines, alternatives to the proposed project, as proposed, are analyzed. Detailed information is provided in Chapter 5 (Alternatives to the Proposed Project) of this EIR. A total of five alternatives were identified that would feasibly attain the most basic

project objectives while avoiding or substantially lessening some of the significant effects of the project were analyzed. An environmentally superior alternative is also identified. These alternatives include the following:

- No Project/No Development
- No Project/Development According to General Plan Alternative
- Hookston Station Only Alternative
- DVC Plaza Only Alternative
- Reduced Density Alternative

1.8 CLASSIFICATION OF ENVIRONMENTAL IMPACTS

Potential environmental impacts have been classified in the following categories:

- **Less Than Significant (LTS)**—Results in no substantial adverse change or impact to existing environmental conditions.
- **Potentially Significant (PS)**—Constitutes a substantial adverse change to existing environmental conditions that can be mitigated to less-than-significant levels by implementation of feasible mitigation measures or by the selection of an environmentally superior project alternative.
- **Significant and Unavoidable (SU)**—Constitutes a substantial adverse change to existing environmental conditions that cannot be fully mitigated by implementation of all feasible mitigation measures or by the selection of an environmentally superior project alternative.

1.9 ENVIRONMENTAL IMPACTS

Table 1-2 (Summary of Environmental Effects and Mitigation Measures), provided at the end of this chapter, presents a summary of the environmental impacts resulting from the proposed project. It has been organized to correspond with the environmental issues discussed in Chapter 4 (Environmental Analysis) and is arranged in four columns: the identified impact under each EIR issue area; the level of significance prior to mitigation; mitigation measures that would avoid or reduce the level of impacts; and the level of significance after implementation of mitigation measures, if applicable. Compliance with existing City programs, practices, and procedures are assumed for purposes of determining the level of significance prior to mitigation. Where no mitigation is required, it is noted in the table.

While the City has evaluated a range of potential mitigation measures to reduce significant project impacts, and will implement all feasible mitigation measures, construction and operation of the proposed project would result in the following significant and unavoidable impacts.

Air Quality/Climate Change

- Operation of the proposed project would exceed Bay Area Air Quality Management District standards for ROG, NO_X, and PM_{10} and would result in a projected air quality violation.
- Implementation of the proposed project could contribute to world-wide climate change through the contribution of greenhouse gases.

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
Air Quality			
Impact 4.1-1 Operation of the proposed project would not provide new sources of regional air emissions that would conflict with or obstruct implementation of the BAAQMD Clean Air Plan.	LTS	No mitigation is required.	LTS
Impact 4.1-2 Construction activities associated with the proposed project could contribute substantially to an existing or projected air quality violation for criteria air pollutants.	PS	MM4.1-1 Implement recommended dust control measures. To reduce particulate matter emissions during project construction phases, the individual project applicants shall require the construction contractors to comply with the dust control strategies developed by the BAAQMD. Project applicants shall include in construction contracts the following requirements: a. Cover all trucks hauling construction debris from the project site. b. Water all exposed or disturbed soil surfaces at least twice daily. c. Use watering to control dust generation during break-up of pavement. d. Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved parking areas and staging areas. e. Sweep daily (with water sweepers) all paved parking areas and staging areas during the earthwork phases of construction. f. Provide daily clean-up of mud and dirt carried onto paved streets from the project site. g. Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.). h. Limit traffic speeds on unpaved roads to 15 mph. i. Install sandbags or other erosion control measures to prevent silt runoff to public roadways. j. Replant vegetation in disturbed areas as quickly as possible. k. Limit vehicle idling time to five minutes or less. MM4.1-2 Individual projects shall provide a plan, for approval by the lead agency and the BAAQMD, demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. The BAAQMD shall make the final decision on the emission control technologies to be used by the project construction equipment; however, acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.	LTS

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
		MM4.1-3 A project applicant and/or contractor shall submit to the BAAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that shall be used an aggregate of 40 or more hours during any phase of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30 day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project applicant and/or contractor shall provide BAAQMD with the anticipated construction timeline, including start date and name and phone number of the project manager and on-site foreman. MM4.1-4 A project applicant and/or contractor shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately and BAAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly by contractor personnel certified to perform opacity readings, and a monthly summary of the visual survey results shall be submitted to the BAAQMD throughout the duration of the project, except that the monthly summary shall not be required for any 30 day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.	
Impact 4.1-3 Operation of the proposed project would exceed BAAQMD standards for ROG, NO_X, and PM_{10} and would result in a projected air quality violation.	PS	MM4.1-5 Installation of wood stoves or wood fireplaces shall be prohibited in all development. Only installation of natural gas fireplaces shall be allowed. MM4.1-6 The project sponsor shall include in the project design specifications the following minimum energy reduction measures or other measures shown to be equally effective: ■ Install ozone destruction catalyst on air conditioning systems, in consultation with the BAAQMD. ■ Plant shade trees per City Zoning Ordinance requirements in parking lots to reduce evaporative emissions from parked vehicles. ■ Require that commercial landscapers providing services at the project site use electric or battery-powered equipment, or other internal combustion equipment that is either certified by the California Air Resources Board or is three years old or less at the time of use, to the extent that such equipment is reasonably available and competitively priced in the San Francisco Bay Area.	SU
Impact 4.1-4 Operation of the proposed project would increase local traffic volumes, but would not expose sensitive receptors to substantial localized carbon monoxide (CO) concentrations.	LTS	No mitigation is required.	LTS

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
Impact 4.1-5 Development of the proposed project would have the potential to expose future on-site residents to substantial Toxic Air Contaminants (TACs).	PS	MM4.1-7 Residential development within the DVC Plaza Area shall be prohibited within the 500 foot buffer zone, as shown in Figure 4.1-1.	LTS
Impact 4.1-6 Implementation of the proposed project could contribute to world-wide climate change through the contribution of greenhouse gases.	PS	MM4.1-8 In order to incorporate passive solar building design and landscaping conducive to passive solar energy use, the proposed project shall include the following measures: ■ Encourage the orientation of buildings to be in a south to southwest direction, where feasible. ■ In all residential units, include energy-efficient window glazings, wall insulation, and efficient ventilation. ■ Landscaping plans shall prohibit the use of liquidambar and eucalyptus trees that produce smog-forming compounds (high emission factors for isoprenes). ■ Use light colored roof materials to reflect heat. ■ Where feasible and appropriate, use light colored parking surface materials. MM4.1-9 The following measures shall be used singularly or in combination to accomplish an overall reduction of 10 to 20 percent in residential energy consumption relative to the requirements of State of California Title 24: ■ Use of air conditioning systems that are more efficient than Title 24 requirements with automated controls ■ Use of Energy Star heating and other appliances, such as water heaters, cooking equipment, refrigerators, dishwashers, furnaces, and boiler unit ■ Installation of photovoltaic rooftop energy systems, where feasible ■ Establishment of tree-planting guidelines that encourage each project applicant to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included in the guidelines MM4.1-10 The project applicant or its successor(s) in interest shall provide each residence and business with an information packet that shall contain, at a minimum, the following information: ■ Commute options: to inform residents and employees of the alternative travel amenities provided, including public transit availability/schedules ■ Maps showing city-wide pedestrian and bicycle path ■ Information regarding BAAQMD programs to reduce city and county-wide emissions MM4.1-11 Prioritized parking within the commercial area shall be given to electric vehicles, hybrid vehicles, and alternative fuel vehicles. MM4.1-12 The following building and design measures shall be considered during the planning of any development within the proposed project site and incorporated into the project, as feasible:	SU

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
		Architectural Items ■ Specified products shall consider locally produced and manufactured items, where appropriate. ■ The specified products shall include options for use of recycled content, if available. ■ Exterior wall systems shall be fully insulated beyond minimum Energy Code standards. ■ The roofing systems shall include insulation that meets or exceeds minimum Energy Code requirements. ■ All windows shall specify insulated Low-E glass with thermal break window frame systems. Mechanical & Plumbing Systems ■ Variable Frequency Drives (VFDs) shall be specified for hot and chilled compressors and water pumps. ■ "Low flow" water efficient fixtures shall be installed, where appropriate. ■ Electronic faucets shall be used, where appropriate. ■ Hot water circulating systems shall be installed that minimize wait time and water loss at fixtures. The systems shall be specified to operate on a timer to maximize hot water system efficiency. Electrical Systems ■ Use occupancy sensors shall be included for all areas allowed by code, such as offices and conference rooms. ■ Use VFD's as a means of motor starting on mechanical equipment. ■ Energy star rated motors and fixtures shall be specified for the project. Landscape ■ The landscape plans shall be designed for the use of drought tolerant plant species wherever possible in order to avoid excessive water demand. ■ Use of mulch shall be used for landscape areas to further retain moisture. Irrigation ■ Irrigation systems shall be designed so that the application rate does not exceed the infiltration rate of the soil, and will minimize overspray and runoff. ■ Rain sensors shall be installed that interrupt the normal irrigation cycle when significant amounts of rainfall are detected.	
Land Use and Planning			
Impact 4.2-1 The proposed amendments to the Commons Plan would not conflict with applicable land use plans adopted by the City of Pleasant Hill.	LTS	No mitigation is required.	LTS

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
Noise			
Impact 4.3-1 Construction activities associated with the proposed project would result in a substantial temporary or periodic increase in ambient noise levels. However, the project's construction noise impacts would be temporary, would not occur during normal sleep hours, and would be consistent with the exemption for construction noise that exists in the City's Municipal Code.	LTS	MM4.3-1 All construction activity within the City shall be conducted in accordance with Section 19.15.060 of the City of Pleasant Hill Municipal Code. MM4.3-2 Each project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit: ■ Ensure that construction equipment is properly muffled according to industry standards and be in good working condition; ■ Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible; ■ Schedule high noise-producing activities between the hours of 8:00 a.m. and 5:00 a.m. Monday through Friday to minimize disruption on sensitive uses; ■ Implement noise attenuation measures, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources; ■ Use electric air compressors and similar power tools rather than diesel equipment, where feasible; ■ Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes; and ■ Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. MM4.3-3 Each project applicant shall require by contract specifications that construction staging areas along with the operation of earthmoving equipment within the project area would be located as far away from vibration and noise sensitive sites as possible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit. MM4.3-4 Each project applicant shall require by contract specifications that heavily loaded trucks used during construction would be routed away from residential streets. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.	LTS

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
Impact 4.3-2 Operation of the proposed project could generate increased noise produced by both on-site and off-site stationary sources that could cause a substantial permanent increase in ambient noise levels in the project vicinity.	PS	MM4.3-5 Each project applicant shall provide proper shielding for all new HVAC systems used by the proposed buildings to achieve an attenuation to 50 dBA CNEL or less at 50 feet from the equipment. MM4.3-6 Garbage storage containers and retail/commercial building loading docks shall be placed to allow adequate separation to shield adjacent residential or other noise-sensitive uses. If the placement of garbage storage containers or loading docks away from adjacent noise-sensitive uses is not feasible, these noise-generating areas shall be enclosed or acoustically shielded to reduce noise-related impacts to these noise-sensitive uses. MM4.3-7 Noise generating stationary equipment associated with proposed commercial and/or office uses, including portable generators, compressors, and compactors shall be enclosed or acoustically shielded to reduce noise-related impacts to noise-sensitive residential uses. MM4.3-8 Prior to issuance of building permits, building plans shall specify the STC rating of windows and doors for all residential land uses. Window and door ratings shall be sufficient to reduce the interior noise level to a CNEL of 45 dBA or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project	LTS
Impact 4.3-3 Operation of the proposed project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity.	PS	MM 4.3-9 Within the DVC Plaza Area prior to the issuance of building permits for residential development, building plans shall reflect the construction of noise barriers around exterior patios and balconies in areas exposed to noise levels greater than 60 dBA L_{dn}. The height, design, and materials used in the barriers shall be sufficient to reduce the exterior noise levels to less than 60 dBA L_{dn} and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project. An acoustical study verifying that adequate shielding will be provided shall be submitted by the applicant to the Agency and City prior to issuance of building permits. MM 4.3-10 Prior to issuance of building permits, building plans shall specify the STC rating of windows and doors for all residential land uses located within the DVC Plaza Area. Window and door ratings shall be sufficient to reduce the interior noise level to 45 dBA L_{dn} or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project.	LTS
Impact 4.3-4 Construction of the proposed project could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels.	PS	MM 4.3-1 and MM 4.3-2 would apply to this impact.	SU
Impact 4.3-5 Operation of the proposed project would not generate and expose sensitive receptors on site or off site to excessive groundborne vibration or groundborne noise levels.	LTS	No mitigation is required.	LTS

Table 1-2 Summary of Environmental Effects and Mitigation Measures

Impact(s)	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance After Mitigation*
Impact 4.3-6 The proposed project could expose people residing or working in the project site to excessive noise levels from the Buchanan Field Airport.	PS	MM 4.3-9 and MM 4.3-10 would apply to this impact.	LTS
Transportation			
Impact 4.4-1 Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.	PS	No feasible mitigation is available.	SU
Impact 4.4-2 Implementation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area.	PS	No feasible mitigation is available.	SU
Impact 4.4-3 The proposed project would not increase hazards due to a design feature or incompatible uses.	LTS	No mitigation is required.	LTS
Impact 4.4-4 The proposed project could result in inadequate emergency access.	LTS	No mitigation is required.	LTS
Impact 4.4-5 The proposed project could conflict with adopted policies, plans, or programs supporting alternative transportation.	LTS	No mitigation is required.	LTS
Impact 4.4-6 The proposed project could increase bicycle and pedestrian circulation needs.	LTS	No mitigation is required.	LTS

Noise

- Construction of the proposed project could generate and expose sensitive receptors on-site to excessive groundborne vibration or groundborne noise levels.

Transportation and Traffic

- Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Implementation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area.

All other physical, project-specific environmental impacts (project-specific and cumulative) are either less than significant or can be mitigated to a less-than-significant level. Cumulative impacts are discussed within each respective technical Section of the EIR.

Noise

- Construction of the proposed project could generate and expose sensitive receptors on-site or off-site to excessive groundborne vibration or groundborne noise levels.

Transportation and Traffic

- Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Implementation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area.

All other physical, project-specific environmental impacts (project-specific and cumulative) are either less than significant or can be mitigated to a less-than-significant level. Cumulative impacts are discussed within each respective technical Section of the EIR.

CHAPTER 2 Introduction

The Pleasant Hill Redevelopment Agency (Agency) is the lead agency for the preparation of an Environmental Impact Report (EIR) for the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan (proposed project). The Agency proposes to increase the size of the Pleasant Hill Commons Redevelopment Project Area to include two additional areas. The first area (DVC Plaza) is located west of Interstate 680 (I-680) and northeast of the intersection of Golf Club Road and Old Quarry Road. The area bounded by College Drive, College Way, Contra Costa Boulevard, and Golf Club Road is also included as part of the DVC Plaza Area. The second area (Hookston Station) is located east of I-680 and south of Hookston Road, between Vincent Road and the Southern Pacific Railroad (SPRR) right-of-way. The purpose of this expansion is to address the physical, social, and economic problems evident in the proposed project areas, and to protect the public and private investments made to date in the existing project area.

This EIR assesses the potential environmental effects of the proposed project within the City of Pleasant Hill. As required by the *California Environmental Quality Act* (CEQA), this EIR (1) assesses the expected individual and cumulative impacts of the proposed project; (2) identifies means of avoiding or minimizing potential adverse environmental impacts; and (3) evaluates a reasonable range of alternatives to the proposed project, including the No Project Alternative.

2.1 BACKGROUND

In 1973, the City of Pleasant Hill City Council established the Pleasant Hill Redevelopment Agency for the purpose of adopting a Redevelopment Project (as authorized by the state Community Development Law, Section 33000 et seq. of the *California Health and Safety Code*) for a 122-acre site in the central portion of the City. The City Council subsequently adopted a Redevelopment Plan for the area, now known as the Pleasant Hill Commons Redevelopment Project Area, by Ordinance No. 330, on May 24, 1974. The primary goal of the redevelopment project was to create a new downtown for the community.

The Agency has made considerable progress since the original adoption of the Pleasant Hill Commons Redevelopment Plan. Agency activities are primarily focused on eliminating blight conditions by providing assistance, where necessary, to property owners and occupants and private developers for redevelopment or rehabilitation of property within the Pleasant Hill Commons Project Area, and by increasing, preserving or improving housing for low and moderate income persons.

The land uses surrounding the Hookston Station Area of the proposed project include industrial and residential uses to the east, residential uses to the south, and industrial/warehouse/commercial uses to the west and north. Land uses surrounding the DVC Plaza site include residential and office uses to the west, commercial uses to the north and east, and residential, educational, and commercial uses to the south. The properties within the Hookston Station Area are zoned limited industrial, while the DVC Plaza properties are zoned retail business. The proposed project would allow the City to renew and

create economic stimulation within the Pleasant Hill Commons Project Area, create a functioning balance of commercial, residential, industrial, and public space, assist in the improvement and redevelopment of properties within the proposed project area, and improve pedestrian and vehicular circulation within and around the project areas.

2.2 PURPOSE OF THE EIR

The Pleasant Hill Redevelopment Agency has prepared this EIR for the following purposes:

- Satisfy the requirements of CEQA.
- Inform the general public, the local community, and responsible and interested public agencies, of the scope of the proposed project, its potential environmental effects, possible measures to mitigate those effects, and project alternatives.
- Enable the City/Agency to consider the environmental consequences when deciding whether to adopt the proposed project.
- Provide a basis for the preparation of subsequent environmental documentation for future development within the proposed project area.
- Serve as a source document for responsible agencies to issue permits and approvals, as required, for specific developments that occur.

2.3 SCOPE OF THE EIR

This Draft EIR describes the existing environmental resources within the project area, analyzes potential impacts on those resources due to implementation of the proposed project, and identifies mitigation measures to reduce the magnitude of significant impacts. The Notice of Preparation/Initial Study (NOP/IS, see Appendix A) prepared for the proposed project considered the potential environmental effects of construction and operation of the project and determined that some significant environmental impacts could occur. Potentially significant impacts related to the following issue areas were identified in the NOP/IS and are further evaluated in this EIR:

- Compatibility issues associated with land use impacts
- Construction and operational air quality
- Construction and operational issues associated with traffic and circulation impacts
- An increase in construction related noise impacts on and around the project sites

The evaluation of these effects is presented on an issue-by-issue basis in Sections 4.1 through 4.4 of Chapter 4 (Environmental Analysis). Each section is divided into three parts: Environmental Setting, Regulatory Setting, and Impacts and Mitigation Measures. In addition to the discussions in each section, those impacts that cannot be mitigated to a level that is less than significant (and are therefore considered significant unavoidable adverse impacts) are discussed separately in Chapter 6 (Other CEQA Considerations).

The NOP/IS determined that implementation of the proposed project would result in either less-than-significant impacts or no impact in the following issue areas:

- Aesthetics
- Agricultural Resources
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Utilities

Therefore, these issue areas are not further addressed or analyzed in the EIR because implementation of the project would not result in an adverse impact on these resources (CEQA Guidelines Section 15143). In some instances mitigation measures were included in the Initial Study to help offset impacts. Those mitigation measures would be adopted as part of this EIR and included in the Mitigation Monitoring and Reporting Program. It should be noted that although Item VII.d) of the Initial Study identified mitigation measures for potential contaminated soils that may occur on-site, the project site is not listed on the California Department of Toxic Substances Control's CORTESE list, which is prepared in compliance with Government Code Section 65962.5.

Other CEQA-related issues, such as cumulative and growth-inducing impacts resulting from implementation of the proposed project are also analyzed in Chapter 6. In addition, alternatives to the proposed project, including a No Project alternative and other alternatives that were considered and eliminated before detailed analysis, are discussed in Chapter 5 (Alternatives to the Proposed Project).

2.4 EIR REVIEW PROCESS

The IS/NOP was circulated for a 30-day public review period from March 10, 2008, through April 9, 2008. Comments received during the public review period were incorporated into the analysis of this EIR. A comprehensive list of all agencies, organizations, and individuals who commented in response to the IS/NOP is provided in Appendix A.

The Draft EIR for the Amendment of the Pleasant Hill Commons Redevelopment Plan was released on June 17, 2008, for a 45-day public review and comment period scheduled to end on August 1, 2008.

The Draft EIR will be available for review at the following locations:

Contra Costa Central/Pleasant Hill Public Library
1750 Oak Park Boulevard
Pleasant Hill, California 94523

City of Pleasant Hill Redevelopment Agency
100 Gregory Lane (first floor, public counter)
Pleasant Hill, California 94523
From 8:00 A.M. to 5:00 P.M., Monday through Friday.

Written comments on the EIR may be sent to:

Mr. Robert Stewart, Redevelopment Administrator
Pleasant Hill Redevelopment Agency
100 Gregory Lane
Pleasant Hill, CA 94523

Following the close of the public comment period on the Draft EIR, responses to written comments will be prepared and published in the Final EIR (FEIR). The EIR for the project will consist of the Draft EIR, comments on the Draft EIR, written responses to those comments (FEIR), and the Mitigation Monitoring and Reporting Program (MMRP). The EIR will be considered for certification by the City of Pleasant Hill City Council and Pleasant Hill Redevelopment Agency, consistent with Section 15090 of the CEQA Guidelines. Both the City and Agency must consider the EIR prior to any decision to approve or reject the proposed project, which can only be approved if the EIR is certified. If the EIR is certified and the proposed project is approved, written findings will be prepared for each significant adverse environmental effect identified in the FEIR, as required by Section 15091 of the CEQA Guidelines. The City and Agency must also adopt the MMRP to ensure compliance with mitigation measures that have been incorporated into the project to reduce or avoid significant effects on the environment during project construction and/or implementation.

When mitigation measures are not available to reduce or avoid significant environmental effects to a less-than-significant level, impacts are considered significant and unavoidable. If the City and Agency approve a project that has significant and unavoidable impacts, both parties shall also state in writing the specific reasons for approving the project, based on the EIR and any other information contained in the public record. This is called a "Statement of Overriding Considerations" and is used to explain the specific reasons that the benefits of a proposed project make its unavoidable environmental effects acceptable. The Statement of Overriding Considerations is adopted at the time the EIR is certified, and before action to approve the project has been taken.

2.5 INTENDED USES OF THE EIR

As previously discussed, this EIR will be used by the Agency and City to evaluate the environmental impacts of its decision with respect to approval or denial of the amendments to the Redevelopment Plan. The DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan EIR is a program-level environmental assessment that evaluates the potential physical environmental effects of implementation of the proposed amendments, as a whole. With respect to individual development projects that may be proposed within the project areas, Section 15168(c) of the CEQA Guidelines states that subsequent activities should be examined in light of the Program EIR to determine whether additional environmental documentation must be prepared. If a later activity would have effects that were not examined in the Program EIR, subsequent environmental documentation must be

prepared, consistent with Sections 15162 through 15164 of the CEQA Guidelines. As such, any development proposals undertaken within the boundaries of the project areas must be approved individually by the City of Pleasant Hill and undergo their own project-level environmental review, in compliance with CEQA.

Under CEQA, other public agencies that have discretionary authority over the project, or aspects of the project, are considered responsible agencies. This document can be used by the responsible agencies to comply with CEQA in connection with permitting or approval authority over the project and subsequent development projects proposed within the DVC Plaza and Hookston Station areas. The Agency prepared this EIR to address, from a programmatic perspective, all state, regional, and local government approvals needed for construction and/or operation within both project areas, whether or not such actions are known or are explicitly listed in this EIR. Examples of the anticipated approvals include the following:

- Building permits from the City of Pleasant Hill for demolition and construction activities
- Architectural review by the City of Pleasant Hill of building designs, site plans, parking arrangement, and landscaping
- Disposition and Development Agreements (DDA) or Owner Participation Agreements (OPA) by the Pleasant Hill Redevelopment Agency
- Grading permits from the City of Pleasant Hill
- Filing a Notice of Intent with the State Water Resources Control Board, Division of Water Quality for the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity

2.6 EIR FORMAT AND CONTENTS

The EIR describes the existing environmental conditions within and in the vicinity of the proposed project areas, analyzes potential project-related impacts on environmental resources, identifies mitigation measures and existing City/Agency programs, practices, and procedures that could avoid or reduce the magnitude of project-related impacts, and provides an evaluation of a reasonable range of alternatives to the proposed project that could eliminate, reduce, or avoid identified project impacts while attaining most of the basic project objectives. In addition to project-related impacts, this EIR also provides an evaluation of cumulative impacts that would be caused by the project in combination with other future projects or growth that could occur in the region. In this fashion, the cumulative impact analysis considers the additive effect of future projects, including the proposed project. As required by Section 15126.2(d) of the CEQA Guidelines, this EIR also provides an analysis of growth-inducing impacts, which are defined as "environmental impacts that could result in additional growth by the proposed project by either removing an obstacle to development or by generating substantial increased growth of the local or regional economy."

The contents of this EIR include the following:

- **Chapter 1: Executive Summary**—This section includes a brief overview of the proposed project, project objectives, community/agency issues, a description of the Mitigation Monitoring and Reporting Program, and a brief description of proposed project alternatives. This chapter also summarizes environmental impacts that would result from implementation of the proposed

project; proposed mitigation measures and/or City/Agency programs, practices, and procedures that would avoid or reduce project-related impacts; and the level of significance of impacts both before and after mitigation.

- **Chapter 2: Introduction**—This chapter provides an overview of the background of the proposed project, the purpose of the EIR, the type of EIR, the EIR review process, the intended uses of the EIR, and an overview of the format and contents of the EIR.
- **Chapter 3: Project Description**—This chapter provides a detailed description of the proposed project, including its location, background information, objectives, and technical characteristics.
- **Chapter 4: Environmental Analysis**—This chapter contains an analysis of environmental impacts for each environmental issue area contained within separate technical sections. Each section contains a description of the environmental setting (or existing conditions), identifies project-related and cumulative impacts, describes existing City/Agency programs, practices, and procedures that address those impacts, and recommends feasible mitigation measures that would avoid or minimize significant environmental impacts. The "Introduction to the Environmental Analysis" at the beginning of the chapter, provides an overview of the scope and format of the environmental analysis, including a description of the baseline for analytical purposes.
- **Chapter 5: Alternatives to the Proposed Project**—This chapter describes alternatives to the proposed project that would feasibly attain most of the basic objectives of the project while avoiding or substantially lessening any of its significant effects. The analysis evaluates the environmental effects that would result from implementation of each of the alternatives and compares these effects to the effects that would result from implementation of the proposed project.
- **Chapter 6: Other CEQA Considerations**—This chapter summarizes impacts that would result from the proposed project, including significant environmental effects, significant and unavoidable environmental effects, irreversible changes to the environment, and growth-inducing impacts.
- **Chapter 7: Preparers**—This chapter identifies the individuals (Agency and consultants) involved in the preparation of the EIR.

2.7 LIST OF ABBREVIATIONS

The following comprehensive list of abbreviations is provided to clarify references used in this EIR.

Table 2-1 List of Abbreviations

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADT	average daily trips
AEA	Atomic Energy Act
AELUP	Airport Environs Land Use Plan
ALUC	Airport Land Use Commission
ANSI	American National Standards Institute
AQMP	Air Quality Management Plan

Table 2-1 List of Abbreviations	
ARB	California Air Resources Board
ATCS	adaptive traffic control system
ATSAC	Automated Traffic Surveillance and Control
AVR	average vehicle ridership
BACT	best available control technology
BMP	best management practices
BSIP	bus service implementation plan
BTU	British thermal units
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CAR	Commuter Assistance-Ridesharing
CASQA	California Stormwater Quality Association
CBC	California Building Code
CC&R	covenants, conditions, and restrictions
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Department of Conservation, Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHL	California Historical Landmarks
CHP	California Highway Patrol
CIWMB	California Integrated Waste Management Board
CMA	Congestion Management Agency
CMA	critical movement analysis
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
COHb	carboxyhemoglobin
CPA	Community Planning Area
CPTED	Crime Prevention Through Environmental Design
CPUC	California Public Utilities Commission

Table 2-1 List of Abbreviations	
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
D/C	demand/capacity
DAMP	Drainage Area Master Plan
dB	decibels
dBA	A-weighted decibels
DFG	Department of Fish and Game
DHS	California Department of Health Services
DIRT	Disaster Initial Response Team
DOF	Department of Finance
DOT	Department of Transportation
DTSC	California Department of Toxic Substances Control
DTSC	Department of Toxic Substances
DU	dwelling unit
EDD	Employment Development Department
EDR	Environmental Data Resources
EH&S	Environment, Health and Safety
EIR	Environmental Impact Report
EMI	emissions data inventory
EMS	Emergency Medical Services
EMT	Emergency Medical Technicians
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESB	Emergency Services Building
EV	electric vehicle
FAA	Federal Aviation Administration
FAR	floor area ratio
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FHWA-RD-77-108	Federal Highway Prediction Model
FICUN	Federal Interagency Committee on Urban Noise
FINDS	Facility Index Systems
FIRM	Flood Insurance Rate Map
FRA	Federal Railroad Administration
ft^3	cubic feet
FTA	Federal Transit Administration

Table 2-1 List of Abbreviations	
FTE	full-time equivalent
gfa	gross floor area
gpd	gallons per day
GRS	Groundwater Replenishment System
gsf	gross square feet
H_2S	hydrogen sulfide
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HI	hazard index
HIST UST	Historical Underground Storage Tank Database
HOV	high occupancy vehicle
HRA	Health Risk Assessment
HRC	Historic Resources Commission
HRI	Historical Resources Inventory
HS	Highway System
HSC	Health and Safety Code
HSWA	Hazardous and Solid Waste Amendment Act
HTP	Hyperion Treatment Plant
HUD	United States Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
HWCL	Hazardous Waste Control Law
ICU	intersection capacity utilization
IRP	Integrated Resources Plan
IS	initial study
IWMD	Industrial Waste Management Division
JPA	Joint Powers Authorities
Km	kilometers
KSF	1,000 square feet
kWh	kilowatt-hour
L_{dn}	day/night average noise level
L_{eq}	equivalent energy noise level
LIP	Local Implementation Plan
LLRW	low-level radioactive waste
L_{max}	maximum instantaneous noise level
L_{min}	minimum instantaneous noise level
LNG	liquid natural gas
LOS	level of service
LTS	less than significant

Table 2-1 List of Abbreviations	
LUST	leaking underground storage tanks
M	magnitude
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
MDA	major development areas
MDU	multiple dwelling unit
MEI	maximally exposed individual
MEP	maximum extent practicable
mgd	million gallons per day
MM	mitigation measure
MMP	Mitigation Monitoring Program
MMRP	Mitigation Monitoring and Reporting Program
MOU	Memorandum of Understanding
MS4s	municipal separate storm sewer systems
MSDS	material safety data sheets
MTBE	methyl tertiary-butyl ether
Mw	moment magnitude
NCCP	Natural Community Conservation Plan
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historical Places
NTSB	National Transportation Safety Board
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
PAO	Professional and Administrative Office
Pb	lead
PCB	polychlorinated biphenyls
PHI	Points of Historical Interest
PM_{10}	particulate matter 10 microns in size or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns in size or less in diameter
pph	persons per household
PPM	parts per million
PRC	Public Resources Code
PS	potentially significant

Table 2-1 List of Abbreviations	
psi	pounds per square inch
PUC	Public Utilities Commission
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resources Conservation Recovery Act
RD	reporting district
RHNA	Regional Housing Needs Assessment
RMP	Risk Management Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCH	State Clearinghouse
SDWA	Safe Drinking Water Act
sf	square feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_4	sulfates
SO_x	sulfur oxides
SPRR	Southern Pacific Railroad
SQG	small quantity generator
SRA	source receptor area
SRRE	Source Reduction and Recycling Element
STC	Sound Transmission Class
STIP	Statewide Transportation Improvement Plan
SU	Significant and Unavoidable
SUSMP	Standard Urban Stormwater Mitigation Plan
SWEEPS	Statewide Environmental Evaluation and Planning System
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TDM	Transportation Demand Management
TDS	total dissolved solids
TES	thermal energy storage system
TIA	Traffic Impact Analysis
TSA	Transportation Systems Analysis
UBC	Uniform Building Code
URBEMIS	Urban Emissions Model
USACE	United States Army Corps of Engineers

Table 2-1 List of Abbreviations	
USDHHS	Unites States Department of Health and Human Services
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USSC	United States Supreme Court
UST	underground storage tanks
USTP	Underground Storage Tank Program
UWMP	Urban Water Management Plan
$\mu g/m^3$	micrograms per cubic meter
V/C	volume/capacity
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compounds
VPR	vehicles per hour
WDR	waste discharge requirements
WQCP	Water Quality Control Plan
WQMP	Water Quality Management Plan
WRCC	Western Regional Climatic Center
WSA	Water Supply Assessment
ZOA	zone of analysis

CHAPTER 3 Project Description

This Environmental Impact Report (EIR) has been prepared in compliance with the requirements of the *California Environmental Quality Act* (CEQA) to address the potential environmental impacts resulting from implementation of the proposed Amendments to the Pleasant Hill Commons Redevelopment Plan (proposed project). The Pleasant Hill Redevelopment Agency (Agency) is serving as the Lead Agency under CEQA for the purposes of this EIR. This EIR contains program-level environmental analysis of the proposed project as allowed by Section 15168 of the CEQA Guidelines.

3.1 PROJECT LOCATION

The proposed project area is located in the City of Pleasant Hill in Contra Costa County, as shown on Figure 3-1 (Project Location Map). The project area is comprised of two subareas, DVC Plaza and Hookston Station. The 49.50-acre DVC Plaza Area extends eastward from Old Quarry Road to Contra Costa Boulevard between Chilpancingo Parkway and Golf Club Road, and includes the Contra Costa County Flood Control channel (also known as the Grayson Creek flood control channel) and the area bordered by College Drive, College Way, Contra Costa Boulevard, and Golf Club Road. The 13.05-acre Hookston Station Area, which extends in a southerly direction from Hookston Road to Mayhew Way between Vincent Road and the former Southern Pacific Railroad (SPRR) right-of-way.

3.1.1 Existing General Plan Land Use and Zoning Designations

The existing General Plan land use designation for the Hookston Station Area is Light Industrial, while the DVC Plaza Area consists of a mix of Commercial and Retail, Mixed Use, and Park and Open Space designations (see General Plan Map, Figure 4.2-2).

The existing zoning for the Hookston Station Area is Limited Industrial, and for the DVC Plaza Area, the zoning designation is Retail Business. It should be noted that Chilpancingo Park, which is located within the DVC Plaza Area, is also designated as Retail Business.

The development standards contained within the City's Zoning Ordinance and the various existing zoning designations were established to assure adequate levels of light, air, and density of development, to maintain and enhance locally recognized values of community appearance, and to promote the safe and efficient circulation of pedestrian and vehicular traffic. Development standards in the Zoning Ordinance further the goals and objectives of the General Plan and are found to be necessary for the preservation of community health, safety, and general welfare. The following are types of uses allowed in the existing zoning designations for the proposed project area:

- Retail Business (RB): retail and service uses, day care, clubs, lodges, community centers, parks and recreational facilities, minor utilities, banks, restaurants, hotels, nurseries, theaters, offices, parking lots and structures, and automobile service stations. Certain residential land uses are also permitted pending a use permit issued by the City.

- Limited Industrial (LI): minor utilities, automobile maintenance, rentals, sales, repair, and washing, parking facilities, communication facilities, laboratories, research and development services, industrial, vehicle storage, warehousing, and wholesale distribution and storage.

3.1.2 Surrounding Land Uses

Land uses in the vicinity of the Hookston Station Area include industrial and residential uses to the east, residential uses to the south, and industrial/warehouse/commercial uses to the west and north. In the vicinity of the DVC Plaza Area, residential and office uses are located to the west with commercial uses to the north and east and residential, educational, and commercial uses to the south.

3.1.3 Existing Conditions

As identified in the Agency's Preliminary Report, the DVC Plaza and Hookston Station areas as a whole and individually experience physical and economic blighting conditions. The physical and economic blighting conditions found in each of the areas are summarized below.[1]

DVC Plaza Area

Adverse physical and economic conditions found in the DVC Plaza area include:

- Conditions that hinder the viable use or capacity of buildings or lots
- Abnormally low lease rates

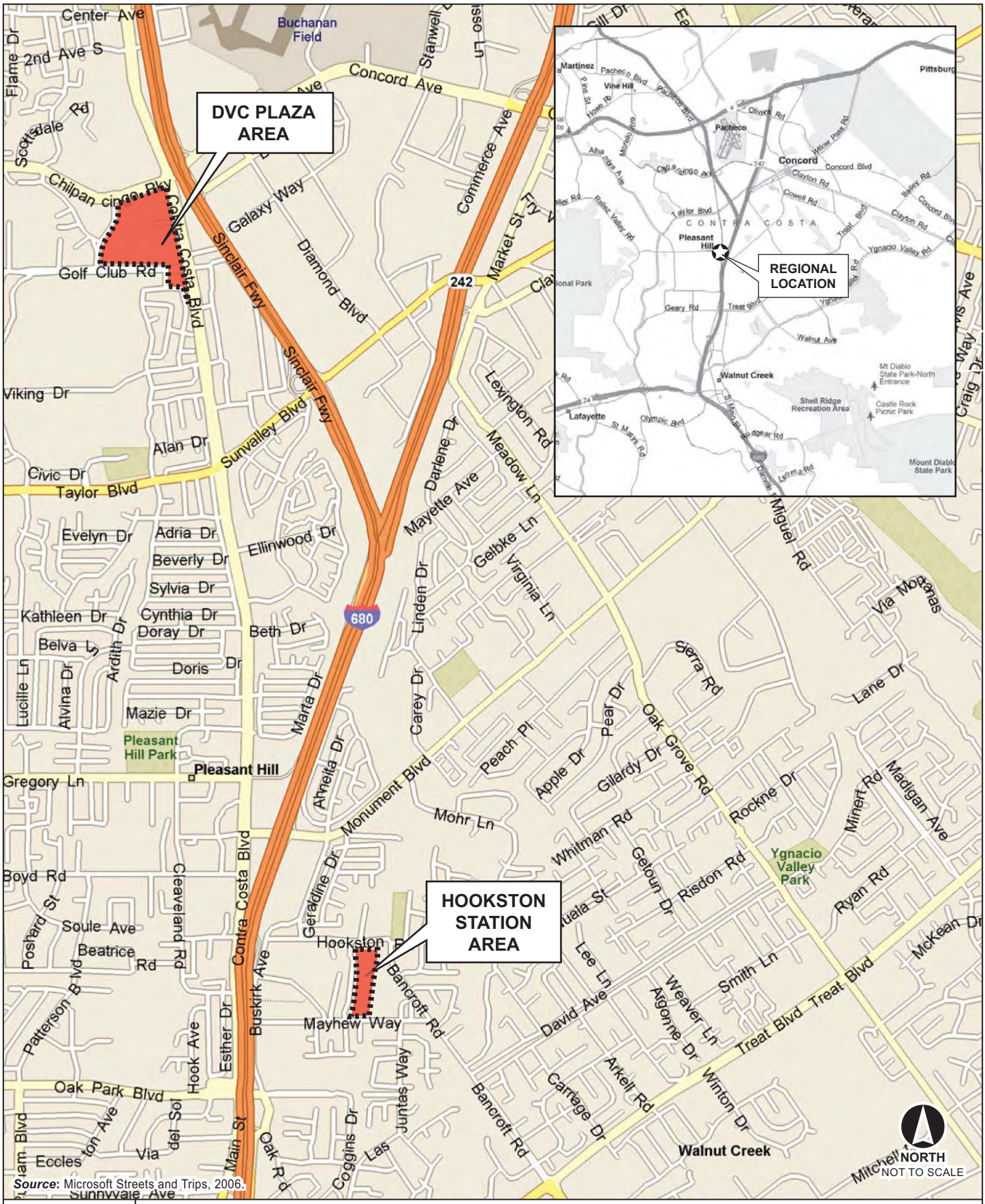
Buildings in the DVC Plaza area exhibit conditions that prevent or substantially hinder their viable use or capacity or that of the lots on which they sit. The buildings, which are primarily commercial in design and character, are substandard or obsolete given present development standards. The blighting conditions, as well as inadequate signage and circulation deficiencies, inhibit the proper use of the property and impair investment. The presence of a flood control easement on several parcels within the DVC Plaza area inhibit the proper use of the property and impairs investment by hindering development. Current lease rates for commercial spaces in DVC Plaza area are significantly lower than other retail shopping centers in the central Contra Costa County market area. These factors contribute to an ongoing cycle where new business tenants are unwilling to move in and lease rates remain low.

Hookston Station Area

The Hookston Station area is characterized by the following adverse physical and economic conditions:

- Unsafe or unhealthy buildings
- Conditions that hinder the viable use or capacity of buildings or lots
- Depreciated or stagnant property values
- Impaired property values due to hazardous waste

[1] Pleasant Hill Redevelopment Agency, Preliminary Report for Pleasant Hill Commons Redevelopment Project Plan Amendment, June 9, 208, pg. II-32.



Source: Microsoft Streets and Trips, 2006.

FIGURE **3-1**

Project Location Map

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Pleasant Hill Commons

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The Hookston Station area contains a number of commercial buildings, many of which, due to a combination of age and deferred maintenance, are unsafe or unhealthy. Property values in the Hookston Station Area have historically grown at a much slower rate than the rest of the City. In addition, the average annual increase in property value for the area is lower than the annual inflationary increase allowed under Proposition 13. These findings suggest that property values in the Hookston Station Area are potentially stagnant. Evidence of hazardous materials have been found in the area and have contributed to impaired property values.

3.2 PROJECT OBJECTIVES

The general intent of the proposed project is to eliminate blight conditions within the DVC Plaza Area and Hookston Station Area and promote, directly or indirectly, new development and the revitalization of existing land uses in the proposed project areas, consistent with the requirements and provisions of the Pleasant Hill General Plan, adopted in 2003. Objectives of the proposed project include the following:

- Renew and create economic stimulation within the Pleasant Hill Commons Project Area in order to create an environment that will establish this area as a center of community activity.
- Create a functioning balance of commercial (retail and office), residential and public space that will re-establish aesthetic, economic, and social viability of the Pleasant Hill Commons Area.
- Increase visibility of DVC Plaza from Contra Costa Boulevard and Golf Club Road.
- Provide assistance to property owners, business owners, and others in the improvement and redevelopment of their properties.
- Redevelop DVC Plaza with a mix of commercial, residential, and public uses.
- Continue to increase, improve, and preserve affordable low and moderate income housing in the community, and to provide such housing in the income and age categories needed based on the City's share of the region's needs.
- Restore habitat and improve public access, including the addition of pedestrian walkways along Grayson Creek.
- Improve pedestrian and vehicular circulation within and around the project areas.
- Strengthening of commercial and industrial functions.
- Provision of adequate land for parking and open spaces.
- Replanning, redesign, and development of areas which are stagnant or improperly utilized.
- Assembly of land into parcels.
- Installation of needed public improvements.

3.3 PROJECT DESCRIPTION

The proposed project includes the amendment of the existing Pleasant Hill Commons Redevelopment Project Area to include the areas identified as the Hookston Station and DVC Plaza Areas. All property

in the project area would be subject to the redevelopment authority of the Agency, and could be subject to redevelopment activities, such as improvements to existing infrastructure and buildings, as well as demolition and new construction activities consistent with objectives of the Redevelopment Plan. The specific redevelopment activities would be determined at a later date and would be dependent upon the availability of land and financial feasibility. Although the Agency intends on developing certain economic development, community enhancement and housing programs and projects to provide assistance, where needed to eliminate blight conditions and increase, improve or preserve low and moderate income housing, currently the Agency has no project-specific plans for redevelopment within either the Hookston Station or DVC Plaza Areas.

For the purposes of this analysis, it is assumed that redevelopment could occur to the maximum extent allowable within the restrictions of the existing General Plan and zoning designations. Therefore, full implementation of the proposed project could result in an overall net increase of approximately 167,400 square feet (sf) of commercial (and in some cases limited industrial) space and up to 300 new residential units, as shown in Table 3-1. Table 3-1 identifies the parcels included within the proposed project areas, as well as potential gross building square footage and net change compared to existing conditions. Under the existing zoning designation, the DVC Plaza Area has the capacity to develop approximately 450,000 sf of commercial space and 300 residential units, which is approximately 147,400 sf and 300 residential units more than under existing or current conditions. The Hookston Station Area has the capacity to develop approximately 171,800 sf of commercial and/or limited industrial uses, which is approximately 20,000 sf more than what currently exists now. The maximum amount of commercial and/or limited industrial space in both areas is based on an assumed floor area ratio of 0.4:1. If future redevelopment activities were to result in the displacement of housing or commercial space, the Agency would be required to comply with the Uniform Relocation Assistance Program, which provides assistance to eligible persons in securing comparable housing or commercial space.

3.3.1 Roadways and Intersections

At this time, there are no specific plans for improvements to existing roadways, driveways, or parking lot areas within either project area. However, it should be noted that the Contra Costa Transportation Authority has several proposed improvements in the vicinity of the proposed project areas as part of its 2007 Seven-Year Capital Improvement Program (CIP). These improvements, which are not part of the proposed project, include the following:

- Construction of additional right and left turn lanes on Contra Costa Boulevard between 2nd Avenue and Monument Boulevard at various intersections, modification of intersection lane alignments, addition of a new Class II bike lane, and improvement of traffic operations throughout the corridor
- Overlay and widening of Hookston Road to three lanes (two through lanes and left turn pockets) and the addition of sidewalks, curbs, and gutters
- Potential improvement of Contra Costa Boulevard at Concord Avenue with an "urban diamond"
- Widening of Mayhew Way to accommodate a right turn lane onto Buskirk Lane
- Widening of Costa Boulevard between the northern City limit and Taylor Boulevard, modification of intersection geometry, and upgrading existing signals
- Improvement of Buskirk Avenue to provide four lanes and left-turn pockets

Table 3-1 Existing and Proposed Land Uses

Assessor's Parcel Number	Existing Use	Parcel Size	Building Size	Potential Future Use	Potential Building sf. (@.4 FAR)*	Change from Existing
DVC PLAZA SUBAREA						
153-081-012	Offices (Citibank)	15,682	2,736	College Park Shopping Center	39,552	21,074
153-087-014	Commercial (7-11)	10,454	2,622			
153-081-015	Commercial (Shop. Ctr.)	72,745	13,120			
153-300-001	Commercial (K Mart)	462,607	97,020	Commercial/ Residential Mixed Use Project	250,000 Commercial Plus 300 Dwelling Units**	58,717 Plus 300 Dwelling Units
153-300-002	Commercial (McDonalds)	29,185	5,080			
153-300-003	Commercial (DVC Plaza)	293,594	76,383			
153-300-004	Commercial (DVC Plaza)	32,234	12,800			
153-300-005	Chilpancingo Park	70,567	—	Park	—	—
153-270-001	Office (Office Bldg)	16,117	5,213	Commercial	6,447	1,234
153-270-002	Comm. (Shell Gas/Car Wash)	24,829	1,916	Commercial	9,932	8,016
153-270-003	Commercial (Denny's)	30,056	3,954	Commercial	12,022	8,068
153-270-004	Offices (Bank/Offices)	43,996	22,680	Commercial	17,598	(5,082)
153-270-006	Commercial (Lazy Boy)	36,155	14,359	Commercial	14,462	103
153-270-007	Comm. (Chevron/Car Wash)	17,424	1,056	Commercial	6,970	5,914
153-270-010	Commercial (Kinko's)	27,225	8,436	Commercial	10,890	2,454
153-270-011	Commercial (Carrow's)	67,954	5,240	Commercial	27,182	21,942
153-270-013	Commercial (Wild Birds)	31,363	5,935	Commercial	12,545	6,610
153-270-014	Commercial (Shop. Ctr.)	92,783	22,538	Commercial	37,113	14,575
153-270-015	Commercial (Giant Chef)	12,632	1,215	Commercial	5,053	3,838
				Total	*449,766 sf Commercial Plus 300 Dwelling Units*	*147,463 sf Commercial Plus 300 Dwelling Units*

Table 3-1 Existing and Proposed Land Uses

Assessor's Parcel Number	*Existing Use*	*Parcel Size*	*Building Size*	*Potential Future Use*	*Potential Building sf. (@.4 FAR)**	*Change from Existing*
HOOKSTON STATION SUBAREA						
148-371-010	Comm./Light Ind.	25,265	8,338	Comm./Light Ind.	10,106	1,768
148-371-011	Comm./Light Ind.	65,776	22,327	Comm./Light Ind.	26,310	3,983
148-371-012	Comm./Light Ind.	44,431	24,808	Comm./Light Ind.	17,772	(7,036)
148-371-013	Comm./Light Ind.	43,560	22,576	Comm./Light Ind.	17,424	(5,152)
148-371-014	Comm./Light Ind.	40,075	2,010	Comm./Light Ind.	16,030	14,020
148-371-015	Comm./Light Ind.	69,696	33,033	Comm./Light Ind.	27,878	(5,155)
148-360-028	Comm./Light Ind.	140,699	38,754	Comm./Light Ind.	56,280	17,526
				Total	*171,800 sf Commercial/Limited Industrial*	*19,954 sf Commercial/Limited Industrial*

SOURCE: Pleasant Hill Redevelopment Agency, 2008; PBS&J, 2008.

* Zoning Ordinance allows a Gross Floor Area Ratio of .4 for Commercial and Limited industrial uses, meaning total building square footage may be .4 of parcel size.

** Maximum allowable development stipulated by City.

- General improvement of the intersection of Contra Costa Boulevard and Golf Club Road

Although there are no specific public improvement projects planned as part of the proposed project, it should also be noted that it is anticipated that as a result of the proposed project, programs may be developed to assist in the construction of the above types of improvements, if certain findings can be made.

3.3.2 Infrastructure

Currently, there are no plans for improvements to existing infrastructure systems in either project area, such as water, wastewater, electric, drainage, roadways, and natural gas services. Future projects would be required to prepare drainage plans in order to comply with applicable state and local standards to mitigate any existing localized flooding problems.

Although there are no specific improvements to existing infrastructure systems planned as part of the proposed project, it should be noted that it is anticipated that as a result of the proposed project, programs may be developed to assist in the construction of these types of improvements, if certain findings can be made.

3.4 BUILDOUT

For the purposes of this analysis, the potential buildout of the Hookston Station and DVC Plaza Areas is assumed to occur by 2018. However, specific development projects have yet to be proposed.

3.5 INTENDED USES OF THIS EIR

This EIR has been prepared to analyze, from a programmatic perspective, the environmental impacts associated with construction and operation of the proposed project and also to address appropriate and feasible mitigation measures or project alternatives that would minimize or eliminate these impacts. This document is intended to serve as an informational document to provide information for the lead agency to consider when exercising its permitting authority or approval power associated with the proposed project.

This EIR is intended to provide decision-makers and the public with information that enables them to intelligently consider the environmental consequences of the proposed action. This EIR identifies significant or potentially significant environmental effects, as well as ways in which those impacts may be reduced to less-than-significant levels, whether through the imposition of mitigation measures or through the implementation of specific alternatives to the proposed project. In a practical sense, EIRs function as a technique for fact-finding, allowing an applicant, concerned citizens, and public agency staff an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure.

3.6 PUBLIC ACTIONS AND APPROVALS REQUIRED

The Pleasant Hill Redevelopment Agency is the lead agency with the authority to carry out or approve the proposed project and shall be responsible for certification of the EIR. The City's project approvals include considering and making findings as to the FEIR and adoption of the proposed amendments to the existing Pleasant Hill Commons Redevelopment Plan. This EIR is intended as a Program EIR, and any future specific development proposals made within the boundaries of the project areas would be subject to separate environmental clearance/review. In addition to the City, federal, regional, and state agencies have discretionary authority over certain aspects of development projects.

3.7 ALTERNATIVES

In accordance with Section 15126.6 of the CEQA Guidelines, alternatives to the proposed project, as proposed, are analyzed. Detailed information is provided in Chapter 5.0 of this EIR. A total of five alternatives were identified that would feasibly attain the most basic project objectives while avoiding or substantially lessening some of the significant effects of the project were analyzed. An environmentally superior alternative is also identified. The alternatives analyzed for the project include the following:

- No Project/No Development
- No Project/Development According to General Plan Alternative
- Hookston Station Only Alternative
- DVC Plaza Only Alternative
- Reduced Density Alternative

3.8 CUMULATIVE DEVELOPMENT SCENARIO

Cumulative impacts refer to the combined effect of project impacts with the impacts of other past, present, and reasonably foreseeable future projects. The CEQA Guidelines require that cumulative impacts be analyzed in an EIR. As set forth in the Guidelines,[2] the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. As stated in the Guidelines, "a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable."[3]

According to the CEQA Guidelines:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts:
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present,

[2] CEQA Guidelines, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, §15130(b), <http://ceres.ca.gov/ceqa>, 2004.
[3] CEQA, Public Resources Code (CRC), Title 14, §21083(b), 2004.

> and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."[4]

In addition, as stated in the CEQA Guidelines, it should be noted that:

> The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.[5]

Cumulative impact discussions for each issue area are provided in the technical analyses contained within Chapter 4 (Environmental Analysis).

The analysis of cumulative impacts may be based on either 1) a list of past, present, and probable future projects producing related or cumulative impacts, or 2) on a summary of projections contained in an adopted general plan or related planning document, or in a prior certified environmental document which described or evaluated regional or areawide conditions contributing to the cumulative impact.[6] Where significant cumulative impacts are identified, the EIR must examine reasonable, feasible options for mitigating or avoiding the project's contribution to a less than considerable level. In some cases, the only feasible mitigation may involve the adoption of ordinances or regulations.

When using a project list, the cumulative impact analysis should account for the nature of each environmental resource to be impacted as well as the location of the project and its type. This reflects the fact that the context for cumulative impacts varies from one environmental discipline to another. For example, cumulative ozone impacts are reasonably considered in the context of an air basin; in contrast, cumulative hydrologic impacts would be meaningfully addressed at a watershed level, and aesthetic impacts would ordinarily be addressed on only a local level.

The potential cumulative impacts of the proposed project have been examined pursuant to the direction provided by the CEQA Guidelines. The potential cumulative impacts of the project are addressed using the "summary of projections" method. The "summary of projections" is the recently adopted City of Pleasant Hill General Plan and the EIR prepared for that General Plan. The proposed project is located within the General Plan planning area.

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[4] CEQA Guidelines, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, §15355, 2004.
[5] Ibid., §15064(i)(5).
[6] Ibid., §15130[b][1].

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CHAPTER 4 Environmental Analysis

4.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

Sections 4.1 through 4.4 of Chapter 4 of this Draft EIR contain a discussion of the potential environmental effects of implementation of the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan, including information related to existing conditions, analyses of the type and magnitude of individual and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts.

4.0.1 Scope of the Environmental Impact Analysis

In accordance with Appendix G of the CEQA Guidelines, the potential environmental effects of the proposed DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan are analyzed for the following environmental issue areas:

- Air Quality/Global Climate Change
- Land Use and Planning
- Noise and Vibration
- Transportation and Circulation
- Mandatory Findings of Significance[7]

Based upon the analysis provided in the Initial Study for the proposed project, which is provided in Appendix A of this document, impacts to aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, population and housing, public services, recreation, and utilities were determined to be "Effects Not Found to Be Significant" according to Section 15128 of the CEQA Guidelines and are therefore not further analyzed in this EIR.

4.0.2 Format of the Environmental Analysis

The technical sections included in Chapter 4 each begin with a description of the project's environmental setting and regulatory framework as it pertains to a particular issue. The environmental setting provides a point of reference for assessing the environmental impacts of the proposed project and alternatives. The Regulatory Framework provides a summary of regulations, plans, policies, and laws that are relevant to each issue area. The setting description in each section is followed by an impacts and mitigation discussion. An explanation of each impact and an analysis of its significance follows each impact

[7] Mandatory Findings of Significance are defined in Appendix G of the CEQA Guidelines, and include specific impacts to biological resources, cumulative impacts, and environmental impacts that will cause substantial adverse effects on human beings, either directly or indirectly. Therefore, Mandatory Findings of Significance are addressed throughout the environmental analysis, which is provided in Sections 4.1 through 4.4 of this EIR.

statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement. The degree to which the identified mitigation measure(s) would reduce the impact is also described. Compliance with applicable laws and regulations is assumed and will be identified in the impact analysis. In many cases, compliance with applicable laws, policies, or regulations would reduce the significance of an impact.

A brief description of each component is described below.

Environmental Setting/Definition of the Baseline

According to Section 15125 of the CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the Initial Study/Notice of Preparation (IS/NOP) is published. The IS/NOP was prepared and available for public review for a 30-day public comment period commencing on March 11, 2008, and ending on April 9, 2008. IS/NOP and copies of the comments received during the comment period are provided in Appendix A.

Regulatory Framework

The Regulatory Framework provides a summary of regulations, plans, policies, and laws that are relevant to each issue area.

Project Impacts and Mitigation

This section is further divided into the following subsections, as described below.

Analytic Method

This subsection identifies the methodology used to analyze potential environmental impacts.

Thresholds of Significance

Thresholds of significance are criteria used to determine whether potential environmental effects are significant. The thresholds of significance used in this analysis were primarily based upon Appendix G of the CEQA Guidelines; however, in some cases, standards were developed specifically for this analysis or reflect those used by the City in other environmental documents. This subsection defines the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. Some thresholds (such as air quality, traffic, and noise) are quantitative, while others, such as visual quality, are qualitative. The thresholds are intended to assist the reader in understanding how and why the EIR reaches a conclusion that an impact is significant or less than significant.

The thresholds of significance are provided both in the "Thresholds of Significance" section and immediately before the relevant impact analysis for ease of correlation.

This subsection describes the potential environmental impacts of the proposed project and, based upon the thresholds of significance, concludes whether the environmental impacts would be considered significant, potentially significant, or less than significant. Each impact is summarized in an "impact statement," followed by a more detailed discussion of the potential impacts and the significance of each impact before mitigation. This subsection also includes feasible mitigation measures that could reduce the severity of the impact. In addition to feasible mitigation measures (MMs), the proposed project will also continue to comply with all applicable local, State, and federal laws and regulations, and these laws and regulations are considered to be part of the project description. Following the description of MMs, the subsection concludes with a statement regarding whether the impact, following implementation of the mitigation measure(s) or continuation of existing City programs, practices, or procedures, would remain significant, and thus be significant and unavoidable, or would be reduced to a less-than-significant level.

The analysis of environmental impacts considers, from a programmatic perspective, general construction and operational activities associated with implementation of the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan. As required by Section 15126.2(a) of the CEQA Guidelines, direct, indirect, short-term, and/or long-term impacts are addressed, as appropriate, for the environmental issue area being analyzed.

The Draft EIR uses the following terms to describe the level of significance of impacts identified during the course of the environmental analysis:

- **Significant and Unavoidable Impact (SU)**—Impact that exceeds the defined threshold(s) of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures
- **Potentially Significant Impact (PS)**—Impact that exceeds the defined threshold(s) of significance and can be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures
- **Less-Than-Significant Impact (LTS)**—Impact that does not exceed the defined threshold(s) of significance

Each impact discussion is separately numbered and includes a brief impact statement that summarizes the subject of the analysis. This format is designed to assist the reader in quickly identifying the subject of the impact analyses and for use in Table 1-1 (Summary of Environmental Effects and Mitigation Measures), which forms the basis of the Mitigation Monitoring and Reporting Program. Impact numbers and statements are not provided for Effects Found to Have No Impact. Accordingly, they are not monitored as part of the Mitigation Monitoring and Reporting Program, and no impact numbers or statements are necessary.

Cumulative Impacts

CEQA requires that EIRs discuss cumulative impacts, in addition to project impacts. In accordance with CEQA, the discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental

impacts attributable to the project alone. Further, the discussion is guided by the standards of practicality and reasonableness. According to Section 15355 of the CEQA Guidelines:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Section 15130(a)(1) of the CEQA Guidelines further states that a "cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts."

Section 15130(a) of the CEQA Guidelines also requires that EIRs discuss the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, it need not consider the effect significant but shall briefly describe the basis for its conclusion. As further clarified by Section 15065 of the CEQA Guidelines, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. If the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, Section 15130(a)(2) of the CEQA Guidelines requires a brief discussion in the EIR of why the cumulative impact is not significant and is not discussed in further detail. Section 15130(a)(3) of the CEQA Guidelines requires supporting analysis in the EIR if a determination is made that a project's contribution to a significant cumulative impact is rendered less than cumulatively considerable and, therefore, is not significant. CEQA recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-related impacts, but instead should "be guided by the standards of practicality and reasonableness" (CEQA Guidelines Section 15130[b]). The discussion of cumulative impacts in the EIR focuses on whether the impacts of the proposed project are cumulatively considerable.

The fact that a cumulative impact is significant, on the whole, does not necessarily mean that the project-related contribution to that impact would be significant as well. Instead, under CEQA, a project-related contribution to a significant cumulative impact is only significant if the contribution is cumulatively considerable. To support each significance conclusion, the EIR provides a detailed cumulative impact analysis, and where project-specific impacts have been identified that, together with the effects of other pending projects, could result in cumulatively significant impacts, these potential impacts are documented.

The geographic scope of the cumulative impact analysis varies depending upon the specific environmental issue area being analyzed. In addition to describing the geographic scope of analysis, where appropriate, each section also designates the cumulative context within the designated geographic

area, which relates to the amount and type of growth that is anticipated to occur within the geographic area.

References

This section identifies sources relied upon for each environmental topic area analyzed in this document (Sections 4.1 through 4.4).

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4.1 AIR QUALITY AND CLIMATE CHANGE

This section analyzes the potential for adverse impacts with respect to air quality that would result from implementation of the proposed project. This section describes the climate in the project area; existing air quality conditions in the project area for criteria air pollutants and toxic air contaminants; and applicable federal, state, and regional air quality standards. This section also analyzes the effects that construction and operation of the proposed project could have on global greenhouse gas emissions and the potential for emissions to cumulatively contribute to global climate change. The Initial Study/Notice of Preparation (IS/NOP) (see Appendix A) identified the potential for impacts associated with violation of air quality standards or substantial contribution to an existing or projected air quality violation; conflict with or obstruct implementation of the applicable air quality plan; expose sensitive receptors to substantial pollutant concentrations; or, cumulatively result in a considerable net increase in criteria pollutants for which the project region is not in attainment. These impacts are addressed in this section. Impacts due to odors were not found to be considerable in the IS/NOP and are not further discussed in this section.

Information used to prepare this section was taken from various sources, including the Bay Area Air Quality Management District (BAAQMD), the Association for Bay Area Governments (ABAG), the California Air Resources Board (CARB) website, the Intergovernmental Panel on Climate Change (IPCC) Climate Change 2007: Fourth Assessment Report, the U.S. Environmental Protection Agency, the California Environmental Protection Agency, the California Air Pollution Control Officers Association (CAPCOA), the California Climate Action Registry (CCAR), and the California Energy Commission (CEC). Although the Draft EIR was issued prior to the release of OPR's Technical Advisory on CEQA and Climate Change (June 19, 2008), the methodology used in this EIR to analyze the environmental impacts of the project relating to climate change are consistent with the suggestions of the technical advisory.

No comments related to air quality or climate change were received in response to the IS/NOP (see Appendix B).

4.1.1 Air Quality

Environmental Setting

A region's air quality is influenced by climate, topography, and pollutant sources. The characteristics of the region encompassing the City of Pleasant Hill are such that the area can, at times, have the potential for high concentrations of regional and localized air pollutants.

Climate and Topography

The project area is located in two separate portions of the City of Pleasant Hill in Contra Costa County. The City is located within the San Francisco Bay Area Air Basin (Basin), so named because the surrounding mountains tend to confine the movement of air and the pollutants it contains. The Basin

includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, the western half of Solano and the southern half of Sonoma counties. The City is bordered to the south by Walnut Creek, the west by Lafayette, the north by Martinez and Pacheco, and the east by Concord. The City is located on the western edge of the Diablo Valley which is approximately 5 miles wide and 10 miles long. The Valley is bounded by the Carquinez Straight to the north and transitions to the San Ramon Valley to the south. To the west of Diablo Valley is the Coast Range (1,500 to 2,000 feet high) which prevents a majority of marine air from reaching the Valley. At night, a surface inversion can occur which channels the air down valley toward the Carquinez Straight.

The regional climate within the Bay Area is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The local climate is characterized by cool, wet winters and hot, dry summers because the Diablo Valley is far from the moderating effect of large water bodies (the city is approximately 15 miles east of the San Francisco Bay), and because the Coast Range blocks marine air flow. During the summer, average daily maximum temperatures are in the high 80s to 90 degrees Fahrenheit (°F). Average minimum temperatures in winter are in the low to mid 40s.

A wide range of emissions sources, such as dense population centers, heavy vehicular traffic, industry, and meteorology, primarily influence the air quality within the greater Bay Area. In addition, in Diablo Valley, the pollution potential is relatively high due to a combination of light winds, a surface-based inversion, and terrain blocking air flow to the east and west, which does not allow for the dispersion of pollutants that occurs during the winter. In the summer, ozone can be transported into the Valley from both the Central Valley and the central Bay Area.[8]

Air Quality Background

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

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The federal and state ambient air quality standards have been set at levels where concentrations could be generally harmful to human health and welfare, and to protect the most sensitive persons from illness or discomfort with a margin of safety.

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[8] Bay Area Air Quality Management District, *Climate, Physiography, and Air Pollution Potential – Bay Area and Its Subregions*, <www.baaqmd.gov/dst/papers/bay_area_climate.pdf>, accessed April 22, 2008.

Criteria Air Pollutants

Criteria air pollutants are a group of pollutants for which federal or state regulatory agencies have adopted ambient air quality standards. The criteria air pollutants of concern in the Bay Area include ozone, carbon monoxide (CO), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead. In addition, toxic air contaminants (TACs) are of concern in the Bay Area. Most of the criteria pollutants are directly emitted. Ozone, however, is a secondary pollutant that is formed in the atmosphere by chemical reactions between oxides of nitrogen (NO_x) and reactive organic gases (ROG). Each of these is briefly described below. Table 4.1-1 (Health Effects of Main Criteria Air Pollutants) lists the health effects associated with these pollutants.

Table 4.1-1 Health Effects of Main Criteria Air Pollutants

Pollutant	*Adverse Effects*
Ozone	■ Ozone can irritate lung airways and cause inflammation. Other symptoms include wheezing, coughing, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people that are active outdoors can be affected when ozone levels are high. ■ Repeated exposure to ozone pollution for several months may cause permanent lung damage. ■ Even at very low levels, ground-level ozone triggers a variety of health problems including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. ■ Ground-level ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. ■ Ozone reduces crop and forest yields and increases plant vulnerability to disease, pests, and weather.
Carbon Monoxide	■ The health threat from lower levels of CO is most serious for those who suffer from heart disease. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. ■ Healthy people can be affected by high levels of CO as well. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death. ■ CO contributes to the formation of ground-level ozone, which can trigger serious respiratory problems.
Particulate Matter	■ Particle pollution, especially fine particles, contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: > Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing > Decreased lung function, aggravated asthma, development of chronic bronchitis > Irregular heartbeat, nonfatal heart attacks; and premature death ■ Particles can be carried over long distances by wind and then settle on ground or water. The effects of this settling include: making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.
Nitrogen Dioxide	■ One of the main ingredients involved in the formation of ground-level ozone, which can trigger serious respiratory problems. ■ Reacts to form nitrate particles, acid aerosols, as well as NO_2, which also cause respiratory problems. ■ Contributes to formation of acid rain; to nutrient overload that deteriorates water quality; and to atmospheric particles that cause visibility impairment. ■ Reacts to form toxic chemicals.

SOURCE: Environmental Protection Agency, 2006. <www.epa.gov/air/urbanair/6poll.html>

- **Ozone** is a gas that is formed when reactive organic gases (ROG) and nitrogen oxides (NO_X)—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions

in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are conducive to its formation.

- **Carbon Monoxide** (CO) is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest in the winter morning when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines—unlike ozone—and motor vehicles operating at slow speeds are the primary source of CO in the Bay Area, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- **Respirable Particulate Matter** (PM_{10}) and **Fine Particulate Matter** ($PM_{2.5}$) consists of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter. Most particulate matter in urban areas is produced by fuel combustion, motor vehicle travel, and construction activities.
- **Nitrogen Dioxide** (NO_2) is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is an essential ingredient in the formation of ozone. It is emitted as a by-product of fuel combustion.
- **Sulfur Dioxide** (SO_2) is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries.
- **Toxic Air Contaminants** (TACs) is a general term for a diverse group of air pollutants that can adversely affect human health, but have not had ambient air quality standards established for them. They are not fundamentally different from the pollutants discussed above, but lack ambient air quality standards for a variety of reasons (e.g., insufficient data on toxicity, association with particular workplace exposures rather than general environmental exposure, etc.). The health effects of TACs can result from either acute or chronic exposure; many types of cancer are associated with chronic TAC exposures.

State standards have been promulgated for other criteria air pollutants, including SO_4, hydrogen sulfide, lead (Pb), and visibility-reducing particles. The state also recognizes vinyl chloride as a TAC, but with an undetermined threshold level of exposure for adverse health effects. Vinyl chloride and hydrogen sulfide emissions are generally emitted from mining, milling, refining, smelting, landfills, sewer plants, cement manufacturing, or the manufacturing or decomposition of organic matter. The state standards for sulfate and visibility reducing particles are not exceeded anywhere in the Basin. Lead is typically only emitted during demolition of structures expected to include lead-based paint and materials. However, specific federal and state regulations and protocols that govern the renovation and demolition of structures, where materials containing lead are located, are required to be adhered to during any construction activities.

Criteria air pollutants are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. Monitors that collect air quality data are located throughout the Air Basin. The closest monitoring station to the project site is the Concord – Treat Boulevard station, located in the City of Concord. This station collects data for ozone, CO, PM_{10}, $PM_{2.5}$, and NO_2 and are summarized in Table 4.1-2 (Exceedances of National and State Air Pollution Standards in the Pleasant Hill Area).

Table 4.1-2 Exceedances of National and State Air Pollution Standards in the Pleasant Hill Area

Pollutant	*2004*	*2005*	*2006*
Ozone (1-hour)			
Highest 1-hour (ppm)	0.097	0.098	0.117
Days>0.12 ppm (National)	0	0	0
Days>0.09 ppm (State)	1	1	8
Ozone (8-hour)			
Highest 8-hour (ppm)	0.083	0.080	0.092
Days>0.08 ppm (National)	0	0	4
Days>0.07 ppm (State)[a]	>4	2	> 4
Carbon Monoxide			
Highest 8-hour (ppm)	2.00	1.51	1.30
Days>=9.0 ppm (National and State)	0	0	0
Particulate Matter (PM_{10})			
Highest 24-hour Concentration (ug/m^3)	50.7	42.2	83.6
Days>150 µg/m^3 (National)	0	0	0
Days>50 µg/m^3 (State)	1	0	3
Particulate Matter ($PM_{2.5}$)			
Highest 24-hour Concentration (ug/m^3)	73.7	48.9	62.1
Days>35 µg/m^3 (National)	1	0	0
Annual Arithmetic Mean (µg/m^3)	11.5	9.3	10.0
Annual Mean > 12.0 µg/m^3 (State)	No	No	No
Nitrogen Dioxide			
Highest 1-hour (ppm)	0.065	0.055	0.047
Days>.25 ppm (State)	0	0	0
Annual Arithmetic Mean µg/m^3	0.012	0.012	0.011
Annual Mean > 0.053 ppm (National)	No	No	No

SOURCE: California Air Resources Board, Air Quality Data Statistics, <www.arb.ca.gov/adam/welcome.html>, accessed April 23, 2008.

According to the CARB, an exceedance is not necessarily a considered a violation.

a. State standard went into effect in early 2006 so no historical data is available.

Existing Ambient Air Quality

Measurements of ambient concentrations of criteria pollutants are used by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) to assess and classify the air quality of each regional air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with federal and state standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment" for that

pollutant. If the pollutant concentration exceeds the standard, the area is classified as a "nonattainment" area. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

The EPA and the CARB use different standards for determining whether the Bay Area is an attainment area. Under national standards, the Bay Area is currently classified as a nonattainment area for ozone. However, 2004 marked the fourth consecutive year that ambient ozone concentrations throughout the Bay Area did not exceed federal standards. This condition, however, does not constitute a formal redesignation of the Bay Area into the attainment category. The next step is for the CARB to submit to the EPA a plan demonstrating how the area will continue to maintain the federal standard for the following 10 years. Once the plan is submitted, the CARB can request the EPA to redesignate the Bay Area as an attainment area for ozone. The Bay Area is in attainment or designated as unclassified for all other pollutants under current federal standards. Under state standards, the Bay Area is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, and an attainment area for all other pollutants. See Table 4.1-3 (Air Quality Standards Attainment Status for Bay Area Air Quality Management District) for the attainment status for the Bay Area.

Table 4.1-3 Air Quality Standards Attainment Status for Bay Area Air Quality Management District

Pollutant	*Primary Standard*	*Status*
Federal Standards		
Ozone (O_3)—8 hour	0.08 ppm	Marginal Nonattainment
Carbon Monoxide (CO)— 1 hour 8 hour	 35 ppm 9 ppm	 Attainment Attainment
Nitrogen Dioxide (NO_2)—Annual Arithmetic Mean	0.053 ppm	Attainment
Inhalable Particulate (PM_{10})—24 Hour	150 µg/m³	Unclassified
Inhalable Particulate ($PM_{2.5}$)— Annual Arithmetic Mean 24 Hour	 15 µg/m³ 35 µg/m³	 Unclassified Unclassified[a]
State Standards		
Ozone (O_3)—1 hour 8 hour	0.09 ppm 0.07 ppm	Nonattainment Nonattainment
Carbon Monoxide (CO)—1 hour 8 hour	20 ppm 9 ppm	Attainment Attainment
Nitrogen Dioxide (NO_2)—1 hour	0.18 ppm	Attainment
Inhalable Particulate (PM_{10})— Annual Arithmetic Mean 24 Hour	 20 µg/m³ 50 µg/m³	 Nonattainment Nonattainment
Inhalable Particulate ($PM_{2.5}$) Annual Arithmetic Mean	12.0 µg/m³	Nonattainment

SOURCE: Bay Area Air Quality Management District, Ambient Air Quality Standards and Bay Area Attainment Status, <www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm>, accessed April 23, 2008.

ppm = parts per million

µg/m³ = micrograms per cubic meter

[a] The U.S. EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m³ to 35 µg/m3 in 2006. EPA is required to designate the attainment status of BAAQMD for the new standard by December 2009.

The CARB also maintains an emission inventory of air pollutants for the state's air basins as well as for the counties inside those air basins. Table 4.1-4 (Estimated Annual Emissions for Bay Area Air Quality Management District (tons/day) presents the latest emission inventory of ROG, CO, NO_x, PM_{10}, and $PM_{2.5}$ for the BAAQMD.

Table 4.1-4 2007 Estimated Annual Emissions for Bay Area Air Quality Management District (tons/day)

Source Category	*ROG*	*CO*	*NO_x*	*PM_{10}*	*$PM_{2.5}$*
Stationary Sources					
Fuel Combustion	4.1	34.4	42.7	4.9	4.8
Waste Disposal	2.6	0.0	0.2	0.0	0.0
Cleaning and Surface Coatings	31.6	0.0	0.0	0.0	-
Petroleum Production and Marketing	23.7	0.6	0.8	0.8	0.7
Industrial Processes	11.3	1.6	3.9	9.6	5.8
Total Stationary Sources	73.3	36.6	47.6	15.3	11.4
Area-Wide Sources					
Solvent Evaporation	70.9	-	-	-	-
Miscellaneous Processes	17.2	177.9	19.7	176.1	53.0
Total Area-Wide Sources	88.0	177.9	19.7	176.1	53.0
Mobile Sources					
On-Road Vehicles	128.4	1229.9	233.7	10.4	7.4
Other Mobile	80.4	487.3	224.8	13.8	12.7
Total Mobile Sources	208.8	1717.2	458.5	24.3	20.1
Natural Sources					
Total Natural Sources	106.5	49.4	1.6	5.1	4.3
Grand Total	*476.6*	*1981.1*	*527.4*	*220.7*	*88.8*

SOURCE: California Air Resources Board, Almanac Emission Projection Data, <www.arb.ca.gov/app/emsinv/emssumcat.php>, accessed April 23, 2008.

Toxic Air Contaminants

In addition to the criteria air pollutants, another group of airborne substances, called Toxic Air Contaminants (TACs) are known to be highly hazardous to health, even in small quantities. TACs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness).

TACs can be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Farms, construction sites, and residential areas can also potentially contribute to toxic air emissions. Due to mounting scientific evidence of adverse health effects, the CARB has recently identified diesel particulate matter as a TAC. Regulation of TACs is achieved through federal and state controls on individual sources. The 1990 CAA Amendments offer a

comprehensive plan for achieving significant reduction in both mobile and stationary source emissions of certain designated Hazardous Air Pollutants (HAP), with a goal of achieving the EPA one in one million cancer risk from TACs. All major stationary sources of designated HAP's are required to obtain and pay the required fees for an operating permit under Title V of the federal CAA Amendments.

TAC impacts are assessed using a maximum individual cancer risk (MICR) that estimates the probability of a potential maximally exposed individual (MEI) contracting cancer as a result of sustained exposure to toxic air contaminants over a constant period of 24 hours per day for 70 years for residential receptor locations. The CARB and local air districts have determined that any stationary source posing an incremental cancer risk to the general population (above background risk levels) equal to or greater than 10 people in 1 million to be excessive.

For stationary sources, if the incremental risk of exposure to project-related TAC emissions meets or exceeds the threshold of 10 cancer cases per 1 million people, the CARB and local air district require the installation of best available control technology (BACT) or maximum available control technology (MACT) to reduce the risk threshold. There is an existing stationary source that is located on the Hookston Station Area that reports its emissions to the CARB: the Tri City Concrete facility at 230 Hookston Road on the northernmost portion of the Hookston Station Area project site. The facility is completely surrounded by other light industrial and general commercial properties. Sensitive land uses, such as residential uses, are located approximately 200 feet west of the facility and 600 feet east of the facility. According to CARB, the facility has not exceeded the threshold that triggers preparation of a health risk assessment, but is required to report its emissions.[9]

To assess risk from ambient air concentrations, the CARB has conducted studies to determine the total cancer inhalation risk to individuals due to outdoor toxic pollutant levels. The CARB has conducted studies to determine the total cancer inhalation risk to individuals due to outdoor toxic pollutant levels. According to the most recent map prepared by the CARB showing the estimated inhalation cancer risk for TACs in the State of California, the project area has an existing estimated risk that is between 250 and 500 cancer cases per 1 million people in 2001. This represents the lifetime risk that between 250 and 500 people in 1 million may contract cancer from inhalation of toxic compounds at current ambient concentrations under an MEI scenario.[10] These ambient air concentrations of TAC are due mostly to diesel particulate matter (DPM) which has recently been identified as a TAC by the CARB. To address the risks of TAC exposure due to adjacency to heavily traveled roadways, the CARB issued a guidance document on air quality and land use called Air Quality and Land Use Handbook: A Community Health Perspective, which recommends that a health risk assessment be conducted for sensitive land uses planned within 500 feet of a freeway or other high traffic roadway, since the highest concentrations of DPM can be found along these roadways.

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[9] California Air Resources Board, Facility Search Tool, <www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>, accessed May 2, 2008.
[10] California Air Resources Board, Maps of Estimated Cancer Risk from Air Toxics, <www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm>, accessed November 16, 2007.

Sensitive Receptors

Some individuals are considered to be more sensitive than others to air pollution. Reasons for greater sensitivity can include existing health problems, duration of exposure to air pollutants, or certain peoples' increased susceptibility to pollution-related health problems due to factors such as age. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be sensitive receptors to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential uses are considered sensitive because people in residential areas are often at home for extended periods of time, so they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on human respiratory function.

Existing sensitive uses adjacent to the DVC Plaza Area include multi-family residential uses immediately to the south, west, and north. For the Hookston Station Area, single-family and multi-family residential uses are located immediately south of the project site. Additional residential uses are located in the vicinity of the Hookston Station Area to the east, south, and west, but are not immediately adjacent to the site.

Regulatory Framework

Air quality within the Basin is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Basin are discussed below.

Federal

United States Environmental Protection Agency

The U.S. EPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The EPA also has jurisdiction over emission sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

Federal Clean Air Act

The Federal Clean Air Act (CAA), as amended, establishes air quality standards for several pollutants. These standards are divided into primary standards and secondary standards. Primary standards are designed to protect public health, and secondary standards are intended to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. The CAA requires that regional plans be prepared for non-attainment areas illustrating how the federal air quality standards could be met. The CARB approved the most recent revision of the SIP in 1994, and submitted it to the EPA. The SIP, approved by the EPA in 1996, consists of a list of ROG and NO_x control measures for demonstrating future attainment of ozone standards. The steps to achieve attainment will continue to require significant emissions reductions in both stationary and mobile sources.

State

California Air Resources Board

The CARB, a part of the California EPA (Cal EPA) is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

The CARB has issued a guidance document on air quality and land use called Air Quality and Land Use Handbook: A Community Health Perspective, which recommends that sensitive land uses not be located within 500 feet of a freeway or other high traffic roadway and that a site-specific health risk assessment be performed as a way to more accurately evaluate the risk. In traffic-related studies, the additional non-cancer health risk attributable to proximity to high-volume roadways was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70 percent drop-off in particulate pollution levels at 500 feet. Recommendations from the CARB Air Quality and Land Use Handbook applicable to the proposed project include the following:[11]

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day
- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard
- Avoid siting new sensitive land uses within one mile of a rail yard; consider possible siting limitations and mitigation approaches

[11] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, p. 4.

California Clean Air Act

The *California Clean Air Act* (CCAA) of 1988 requires non-attainment areas to achieve and maintain the state ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining the state ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards. The CCAA also requires that by the end of 1994 and once every three years thereafter, the air districts are to assess their progress toward attaining the air quality standards. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period.

Air Toxics Hot Spots Information and Assessment Act

The *Air Toxics Hot Spots Information and Assessment Act of 1987* (AB 2588), *California Health and Safety Code* Section 44300 et seq., provides for the regulation of over 200 air toxics and is the primary air contaminant legislation in the state. Under the Act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. The purpose of AB 2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.

Assembly Bill 1807

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The CARB is responsible for the identification and control of TACs, except pesticide use. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The CARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects.

In 1998, the CARB identified diesel particulate matter (DPM) as a toxic air contaminant under the AB 1807 program. DPM is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. In October 2000, the CARB released a report entitled Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. This plan identifies DPM as the predominant TAC in California and proposes methods for reducing diesel emissions.

Senate Bill 656

As a first step in the implementation of Senate Bill 656 (SB 656, Reducing Particulate Matter in California), the CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce particulate matter PM_{10} and $PM_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as

of January 1, 2004, for stationary, area-wide, and mobile sources. As a second step air districts must adopt implementation schedules for selected measures from the list. The implementation schedules will identify the appropriate subset of measures, and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district will prioritize measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration is also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process. The consideration and adoption of air district rules in their implementation schedules, coupled with CARB's ongoing programs, will ensure continued progress in reducing public exposure to PM and attainment of the state and federal standards.

Regional

Bay Area Air Quality Management District

The BAAQMD is the primary agency responsible for comprehensive air pollution control in the San Francisco Bay Area Air Basin, including Contra Costa County. The District's jurisdiction encompasses all of seven counties—Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa, and portions of two others—southwestern Solano and southern Sonoma. To that end, the BAAQMD, a regional agency, works directly with the Association of Bay Area Governments, the Metropolitan Transportation Commission, and local governments and cooperates actively with all federal and state government agencies. The BAAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

The BAAQMD is directly responsible for reducing emissions from stationary (area and point) sources and for assuring that state controls on mobile sources are effectively implemented. It has responded to this requirement by preparing a sequence of Ozone Attainment Plans and Clean Air Plans that comply with the federal *Clean Air Act* and the *California Clean Air Act* to accommodate growth, reduce the pollutant levels in the Bay Area, meet federal and state ambient air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. The Ozone Attainment Plans are prepared for the federal ozone standard, and the Clean Air Plans are prepared for the state ozone standards. The most recent Ozone Attainment Plan was adopted by the BAAQMD Board of Directors on October 2001 and demonstrates attainment of the federal ozone standard in the Bay Area by 2006. The current regional Clean Air Plan was adopted by the Board of Directors on December 20, 2000. It identifies the control measures that would be implemented through 2006 to reduce major sources of pollutants. These planning efforts have substantially decreased the population's exposure to unhealthful levels of pollutants, even while substantial population growth has occurred within the Bay Area. The Clean Air Plan predicts that regional ozone concentrations will decrease by 1.2 percent per year or 9.0 percent over the twelve years after it was adopted.

In 2003, the California Legislature enacted SB 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. SB 656 requires CARB, in consultation with local air districts, to develop and adopt, by January 1, 2005, a list of the most readily available, feasible, and cost-effective control measures that could be used by CARB and the air districts to reduce PM_{10} and $PM_{2.5}$. In November 2005, the BAAQMD adopted a Particulate

Matter Implementation Strategy focusing on those measures most applicable and cost effective for the Bay Area.

Although the BAAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Bay Area. Instead, the BAAQMD has used its expertise and prepared the BAAQMD CEQA Guidelines to indirectly address these issues in accordance with the projections and programs of the Ozone Attainment Plan and Clean Air Plan. The purpose of the BAAQMD CEQA Guidelines is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects and plans proposed in the Bay Area. Specifically, the BAAQMD CEQA Guidelines explain the procedures that the BAAQMD recommends be followed during environmental review processes required by CEQA. The BAAQMD CEQA Guidelines provide direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The BAAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Bay Area, and adverse impacts will be minimized.

Local

City of Pleasant Hill

Local jurisdictions, such as the City of Pleasant Hill, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation, as necessary, of air emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, mitigates potentially significant air quality impacts by conditional discretionary permits, and monitors and enforces implementation of such mitigation.

City of Pleasant Hill General Plan

The Pleasant Hill General Plan contains several policies and goals related to the protection of public health through the reduction of air pollution emissions.

Community Development Element

Community Development Policy 23A. Give priority to development that incorporates energy-efficient and resource-conserving design and construction.

Community Development Program 23.1. Design new public buildings to exceed State standards for water and energy efficiency.

Community Development Program 23.2. Explore use of grant funds to supplement the ability of the City Housing Rehabilitation Program to assist retrofitting energy-saving features in existing residences.

Community Development Program 23.3. Consider amending the Zoning Ordinance to include requirements and standards for such conservation measures as energy audits, solar access, insulation, solar retrofit and solar water heating.

Community Development Program 23.4. Develop architectural review guidelines that include the latest and best available energy-efficiency techniques and technology.

Community Development Program 23.5. Develop a tree planting and maintenance strategy to reduce ambient air temperature on hot sunny days.

Community Development Program 23.6. Work with Pleasant Hill Bayshore Disposal to continue to improve citywide recycling programs, with the goal of attaining the mandated 50 percent diversion rate.

Community Development Program 23.7. Work with the Central Contra Costa Sanitary District and the East Bay Municipal Utility District to expand the use of recycled and other non-potable water for landscape irrigation and other appropriate uses.

Community Development Program 23.8. Continue to implement the City program to replace traffic signal bulbs with light-emitting diodes and back-up batteries to save energy and avoid signal outages.

Community Development Program 23.9. Require compliance with the City Recycled Water Ordinance.

Circulation Element

Circulation Goal 4. Reduce congestion and vehicle trips through non-automobile transportation.

Circulation Policy 4A. Maintain and upgrade the City's bikeway and pedestrian system.

Circulation Policy 4B. Encourage use of bus and rail service for local and regional travel.

Circulation Program 4.1. Identify areas where bikeway connections can be added and/or made safer.

Circulation Program 4.2. Install additional bike lanes, routes, trails and connections where feasible.

Circulation Program 4.3. Work with County Connection to ensure that local bus and shuttle service meets community needs.

Circulation Program 4.4. Explore incentives for public employees to not commute by automobile.

Circulation Program 4.5. Expand use of transit for seniors, students, and persons with disabilities.

Circulation Program 4.6. Work with employers, schools, and developers to encourage ridesharing and transit use.

Circulation Program 4.7. Work with employers, schools, and developers to encourage innovative transportation measures.

Safety and Noise Element

Safety and Noise Policy 8A. Promote measures that improve air quality and help meet air quality attainment standards.

Safety and Noise Policy 8B. Minimize the air quality impacts of vehicle emissions, and promote the use of clean alternative fuels.

Safety and Noise Policy 8C. Encourage use of electric (rather than gasoline-powered) equipment and natural gas appliances, including outdoor grills.

Safety and Noise Program 8.1. Work with local and regional agencies to develop a consistent and effective approach to air quality planning and management that includes strategies to reduce wood burning and vehicle trips.

Safety and Noise Program 8.2. Enforce air pollution control measures during construction.

Safety and Noise Program 8.3. Synchronize traffic signals on roads susceptible to high emission levels from idling vehicles.

Safety and Noise Program 8.4. Utilize alternative-fuel vehicles in the City fleet.

Safety and Noise Program 8.5. Give preference to firms using reduced-emission equipment for City contracts, including for services such as trash collection.

Safety and Noise Program 8.6. Amend the Zoning Ordinance to require natural gas connections and exterior electrical outlets.

Safety and Noise Program 8.7. In consultation with the Bay Area Air Quality Management District, identify sources of odors and toxics and amend the Zoning Ordinance to establish buffer zones around those sources.

Consistency Analysis

The protection of public health through the reduction of air pollution emissions is not only directly tied to specific goals and policies calling for achieving the federal and state ambient air quality standards. Reduction in air pollution emissions is also tied to the City's policies on circulation and energy consumption. With alternative methods of transportation, an interconnected circulation system, and integration of a mix of land uses, vehicle trips can be greatly reduced, thus reducing the overall emission of criteria air pollutants. The production of energy also creates emissions of criteria air pollutants. With policies in the City aimed at reducing its demand for energy resources, it can significantly reduce the amount of air pollution emissions related to its consumption of energy.

Because the purpose of the proposed project is to facilitate the infill and redevelopment of the project area, the project is generally consistent with these goals and policies related to air quality. The proposed project also seeks to maintain a mix of uses which encourages a more active community more apt to use other transportation modes instead of increasing single-occupancy vehicle trips, and thus, increasing air pollution emissions.

Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would result from operation of the proposed development and from project-related traffic volumes. Construction activities would also generate emissions in the project area and on roadways resulting from construction-related traffic. The methodology discussed below is currently recommended by the BAAQMD in the BAAQMD CEQA Guidelines to determine the significance of air quality impacts.

Consistency with the 2000 Clean Air Plan

Although the BAAQMD CEQA Guidelines identify specific significance thresholds for a project's emissions or concentrations of most criteria air pollutants (as specified below), there is no similar air quality-related threshold or methodology to determine whether a general development project would conflict with or obstruct implementation of the Clean Air Plan (CAP). The BAAQMD CEQA Guidelines specify that, in jurisdictions where the local general plan is consistent with the Clean Air Plan, if a project is consistent with the local general plan's land use designation, then it is consistent with the CAP. The BAAQMD recommends that the consistency analysis address whether:

- The local plan is consistent with CAP population and vehicle miles traveled (VMT) assumptions, specifically, whether:
  - Population growth for the jurisdiction will exceed the values included in the current CAP, and whether
  - The rate of increase in VMT for the jurisdiction is equal to or lower than the rate of increase in population.
- The local plan is consistent with Clean Air Plan transportation control measures and such measures are indeed being implemented.
- Buffer zones are established to avoid odors and toxics.

If the answer to all of the above is yes, then the general plan is determined consistent with the CAP. If the answer to any of the above is no, then the plan is considered inhibitive to the implementation of the CAP and is considered inconsistent.

Construction Emissions

Construction–related activities are generally short-term, and the BAAQMD does not recommend any thresholds of significance for their associated emissions. Instead, the BAAQMD bases the determination of significance on a consideration of the control measures to be implemented. If all appropriate emissions control measures recommended by the BAAQMD CEQA Guidelines are implemented for a project, then construction emissions are not considered significant. Currently these control measures only apply to emissions of fugitive dust. Emission controls are not required for the emissions generated by construction vehicle engines.

One of the reasons that construction-level air quality emissions are not compared with a quantified threshold is that the construction industry is an existing source of emissions within the Bay Area, and the entire state. In general, construction equipment operates at a site for a short time, and when finished, moves on to a new construction site. The same situation occurs for the construction employees who make a living going from one site to another doing similar construction work. For those reasons, construction exhaust emissions are included in the regional emission inventory that is the basis for regional air quality plans. Furthermore, construction equipment comprises a good portion of the past,

existing, and future (through 2006) emission inventory within the Bay Area.[12] Also, the Bay Area 2000 Clean Air Plan states that PM_{10} emissions from "other sources" include construction operations for the past, present, and future (2006) emissions inventory.[13]

Operational Emissions—Daily Emissions of ROG, NO_x, and PM_{10}

The BAAQMD currently recommends that projects with operational emissions that exceed any of the following thresholds be considered significant. These thresholds apply to the operational emissions associated with individual projects only; they do not apply to construction-related emissions. The operational emissions that are generated by individual projects and exceed these thresholds are also considered to be cumulatively considerable by the BAAQMD.

- 80.0 pounds per day (ppd) of ROG
- 80.0 ppd of NO_x
- 80.0 ppd of PM_{10}

Operational emissions of CO are considered significant if, in addition, they cause or contribute to violations of the federal or State ambient air quality standards for CO (i.e., 35 ppm and 20 ppm, respectively, for one-hour averages; 9 ppm for eight-hour averages).

Operational Emissions—Toxic Air Contaminants

For stationary sources, the BAAQMD recommends that projects that could emit carcinogenic or toxic air contaminants that exceed the maximum individual cancer risk of ten in one million, or a hazard index that is greater than 1.0 be considered significant.

For mobile sources, CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* identifies high traffic freeways and roads as a source of TACs that could present a potentially significant health risk and recommends that local land use agencies provide for specific "buffer zones" between these sources and nearby sensitive receptors. One particular source of TACs is diesel particulate matter, which CARB has listed as a primary source of TACs from mobile sources. CARB studies show that air pollution levels can be significantly higher within 500 feet of high traffic freeways or roads (greater than 100,000 vehicles per day for an urban roadway or 50,000 vehicles per day for a rural roadway) and then diminish rapidly. Actual concentration of diesel particulate matter will vary at a particular location depending on traffic volume, vehicle mix, prevailing winds and other variables. CARB recommends a 500-foot screening distance for new sensitive receptors near a high traffic freeway or road to determine if a detailed analysis is required. The basis for CARB's advisory recommendation of 500 feet is traffic-related studies of the additional cancer and non-cancer health risks attributable to proximity to roadways. At 500 feet from a freeway, particulate pollution drops by 70 percent and cancer risk drops proportionately.

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[12] California Air Resources Board, *Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard* (2001), Table 4, p. 12.
[13] Bay Area Air Quality Management District, *Bay Area 2000 Clean Air Plan,* Table 1, p. 3.

Thresholds of Significance

A project would have a significant adverse air quality impact if the project would do any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Expose sensitive receptors to substantial pollutant concentrations
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)

It should be noted that potential impacts with respect to objectionable odors were scoped out as part of the IS/NOP and are not included within this chapter. For a discussion of these impacts, please refer to Appendix A (IS/NOP).

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

Impact 4.1-1 **Operation of the proposed project would not provide new sources of regional air emissions that would conflict with or obstruct implementation of the BAAQMD Clean Air Plan. Therefore, this impact would be considered *less than significant*.**

The BAAQMD CEQA Guidelines specify that, if a project is consistent with the local general plan's land use designation and the local general plan is consistent with the CAP, then the project is consistent with the CAP. For a general plan to be consistent with the CAP, it must have population and VMT assumptions similar to the CAP; it must be consistent with CAP transportation control measures; and appropriate buffer zones must be established to avoid odors and high concentrations of pollutants. According to the City of Pleasant Hill General Plan EIR, the General Plan is considered consistent with the CAP because it contains similar population and VMT projections as the CAP and it implements applicable transportation control measures. The Pleasant Hill General Plan is also consistent with the CAP because it establishes a policy through mitigation that creates buffer zones around odor and pollution sources.[14]

Implementation of the proposed project would result in a net increase of commercial, industrial, and residential uses. At the DVC Plaza Area site, there could be a net increase of up to 147,463 sf of commercial uses and 300 residential units under the existing zoning on the site. At the Hookston Station Area site, there could be a net increase of up to 19,954 sf of commercial and light industrial uses. However, this net increase in dwelling units and square footage is within the allowable restrictions of the existing General Plan and zoning designations. Therefore, the proposed project would not require a

[14] Crawford, Multari & Clark Associates, *Draft Environmental Impact Report for the City of Pleasant Hill Draft General Plan,* January 2003, pp. 67-71.

General Plan amendment to accommodate the new growth; it is assumed that redevelopment would occur to the maximum extent, but only within the allowable development standards of the existing General Plan and zoning regulations.

Because analysis under the CAP assumes the maximum development potential for each land use, maximum development under the proposed project has already been assumed in the plan and the project would not obstruct its implementation. Although the project would result in a net increase of residential units and commercial and light industrial land uses, the proposed project would only allow development up to the maximum allowable densities under the existing zoning designations which have already been analyzed in the CAP. Thus, emissions due to maximum development of the project site have already been included in the CAP. Development of the project would not conflict with implementation of the CAP for attainment of criteria air pollutants. Because the proposed project would not result in air emissions that obstruct implementation of the CAP, this impact is considered ***less than significant***.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.1-2 **Construction activities associated with the proposed project could contribute substantially to an existing or projected air quality violation for criteria air pollutants. This is considered a potentially significant impact. Implementation of mitigation measures MM4.1-1 through MM4.1-4 would reduce this impact to a *less-than-significant level*.**

Foreseeable construction activities associated with development of the DVC Plaza Area site and the Hookston Station Area site would include site preparation, demolition, grading, placement of utilities and other infrastructure, placement of foundations for structures, fabrication of buildings, and landscaping. Construction activities would require the use of heavy trucks, excavating and grading equipment, and other mobile and stationary construction equipment. Emissions during construction activities would be caused by material handling, traffic on unpaved or unimproved surfaces, use of paving materials and architectural coatings, exhaust from construction worker vehicle trips, and exhaust from diesel-powered construction equipment.

Heavy construction activity on dry soil exposed during construction activities could cause emissions of dust (usually monitored as PM_{10}), which could be annoying to persons who are near the construction area or otherwise unhealthy, including sensitive receptors located in nearby residential areas. ROG, NO_x, CO, and PM emissions also would result from the combustion of diesel fuel by heavy equipment and construction worker vehicles. Throughout the construction phase, construction-related emissions would vary day to day depending on the specific construction phase taking place at the time. When considered in the context of long-term project operations, construction-related emissions would be short-term and temporary, but these activities could still cause significant effects on local air quality. This is considered a potentially significant impact.

Mitigation Measures

The BAAQMD has developed an analytical approach that obviates the need to quantitatively estimate construction emissions. The emissions of CO and ozone precursors (ROG and NO_x) from exhaust and other construction activities BAAQMD includes in the emission inventory that is the basis for regional air quality planning; it does not expect these emissions would impede attainment of ambient air quality standards. To minimize dust emissions, the BAAQMD has identified a set of feasible PM_{10} control measures for all construction activities in the air basin. Implementation of the BAAQMD-recommended measures would reduce the impacts caused by construction dust to a *less-than-significant level.*

MM4.1-1 *Implement recommended dust control measures. To reduce particulate matter emissions during project construction phases, the individual project applicants shall require the construction contractors to comply with the dust control strategies developed by the BAAQMD. Project applicants shall include in construction contracts the following requirements:*

a. Cover all trucks hauling construction debris from the project site.

b. Water all exposed or disturbed soil surfaces at least twice daily.

c. Use watering to control dust generation during break-up of pavement.

d. Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved parking areas and staging areas.

e. Sweep daily (with water sweepers) all paved parking areas and staging areas during the earthwork phases of construction.

f. Provide daily clean-up of mud and dirt carried onto paved streets from the project site.

g. Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).

h. Limit traffic speeds on unpaved roads to 15 mph.

i. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

j. Replant vegetation in disturbed areas as quickly as possible.

k. Limit vehicle idling time to five minutes or less.

In addition, ROG and NO_x, which are precursors of ozone, would be emitted during construction activities associated with future development. Although the BAAQMD does not have thresholds of significance specific to these pollutants, their emission would contribute to the formation of regional ozone concentrations in the Bay Area. Implementation of the following mitigation measures would reduce emissions of ROG and NO_x, which would help reduce ozone levels in the region.

MM4.1-2 *Individual projects shall provide a plan, for approval by the lead agency and the BAAQMD, demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. The BAAQMD shall make the final decision on the emission control technologies to be used by the project construction equipment; however, acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.*

MM4.1-3 *A project applicant and/or contractor shall submit to the BAAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that shall be used an aggregate of 40 or more hours during any phase of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project applicant and/or contractor shall provide BAAQMD with the anticipated construction timeline, including start date and name and phone number of the project manager and on-site foreman.*

MM4.1-4 *A project applicant and/or contractor shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately and BAAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly by contractor personnel certified to perform opacity readings, and a monthly summary of the visual survey results shall be submitted to the BAAQMD throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.*

Impact 4.1-3 **Operation of the proposed project would exceed BAAQMD standards for ROG, NO_x, and PM_{10} and would result in a projected air quality violation. Despite implementation of MM4.1-5 and MM4.1-6, the project would exceed air quality standards. Therefore, this impact would be considered *significant and unavoidable*.**

The analysis of daily operational emissions from the proposed project (which assumes buildout of the DVC Plaza and Hookston Station areas as discussed in Impact 4.1-1) has been prepared using the URBEMIS 2007, version 9.2.4 computer model recommended by the BAAQMD. The results of the URBEMIS 2007 calculations for the daily operational emissions of the proposed project are presented in Table 4.1-5. Because winter emissions are generally higher than summer emissions, the daily unmitigated emissions in winter are shown in Table 4.1-5 (see Appendix C for URBEMIS 2007 outputs). Because there are existing uses on the project site, only the net increase in emissions were modeled in order to analyze emissions attributable just to the proposed project. Operation of the project was assumed in 2008 to give a more conservative estimate of emissions from the vehicle fleet (a vehicle fleet in year 2018 would result in lower emissions because engine efficiency is assumed to improve over time). In addition, the URBEMIS 2007 default for hearth usage is 55 percent with natural gas fireplaces and 45 percent with wood stoves or fireplaces. This default was used in this analysis.

Mobile Source Emissions. The proposed project is anticipated to result in a total of approximately 10,844 new vehicle trips per day attributed to development of both the DVC Plaza and Hookston Station areas. Based on URBEMIS 2007 modeling results, these new project trips would generate approximately 109.70 pounds/day of ROG, 167.03 pounds/day of NO_x, and 142.19 pounds/day of PM_{10} (see Table 4.1-5). All of these emissions are predicted to exceed the BAAQMD significance

standards of 80 pounds/day for ROG, NO_x, and PM_{10}. Therefore, emissions from mobile sources associated with the proposed project would have a significant air quality impact.

Table 4.1-5 Proposed Project Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day		
	ROG	NO_x	PM_{10}
Water and Space Heating (Natural gas)	0.34	4.49	0.01
Hearth	42.48	3.66	24.57
Landscape Maintenance (no winter emissions)	-	-	-
Consumer Products	14.68	-	-
Architectural Coatings	2.99	-	-
Motor Vehicles	109.70	167.03	142.19
Maximum Daily Emissions	*170.19*	*175.18*	*166.77*
BAAQMD Thresholds (lb/day)	80.0	80.0	80.0
Significant Impact	Yes	Yes	Yes
With Implementation of Mitigation Measure 4.1-3 (a)			
Without Hearth[a]	0.10	1.66	0.13
Maximum Daily Emissions	127.81	173.18	142.33
BAAQMD Thresholds (lb/day)	80.0	80.0	80.0
Significant Impact	Yes	Yes	Yes

SOURCE: PBS&J 2008. Calculation sheets are provided in Appendix C.

[a] It is assumed that 100 percent of the development would have natural gas fireplaces and no wood stoves or fireplaces.

Stationary Source Emissions. The proposed project would also result in emissions from the use of electricity and natural gas for site heating, cooling, ventilation, and lighting. Emissions would be produced either directly at the site or indirectly through increased use of utility services. The proposed project would generate approximately 60.49 pounds/day of ROG, 8.15 pounds/day of NO_x, and 24.58 pounds/day of PM_{10}. These emissions are included in the totals presented in Table 4.1-5.

As shown, operation of the proposed project would generate emissions that exceed the thresholds of significance recommended by the BAAQMD for ROG, NO_x, and PM_{10}. The exceedance of the BAAQMD thresholds for these three criteria pollutants is primarily due to the increase in motor vehicles traveling to and from the project site. An additional significant contributor to ROG and PM_{10} emissions are from hearth usage. This is considered a significant impact.

Mitigation Measures

Implementation of mitigation measure MM4.1-5 would prohibit the installation of wood stoves and fireplaces in residential uses which would result in stationary source emissions reductions. Instead of wood stoves and fireplaces, residential units would be allowed to install EPA-certified natural gas fireplaces. Table 4.1-5 includes the daily emission totals that would result from implementation of this measure.

The majority of project emissions are associated with mobile sources. Assuming compliance with mitigation measure MM4.1-5, an additional 37 percent reduction of ROG, 54 percent reduction of NO_x, and 44 percent reduction in PM_{10} would be required to reduce operational emissions below BAAQMD thresholds. Implementation of mitigation measures MM4.1-5 and MM4.1-6 would result in reductions in criteria air pollutants. Implementation of mitigation measures MM4.1-8 through MM4.1-12 contained in the Climate Change section below would reduce criteria air pollutants as well as greenhouse gas emissions. However, these mitigation measures would not be sufficient to reduce the project's air emissions to a less-than-significant level. Despite these measures, pollutant emissions would remain ***significant and unavoidable***.

MM4.1-5 *Installation of wood stoves or wood fireplaces shall be prohibited in all development. Only installation of natural gas fireplaces shall be allowed.*

MM4.1-6 *The project sponsor shall include in the project design specifications the following minimum energy reduction measures or other measures shown to be equally effective:*

- *Install ozone destruction catalyst on air conditioning systems, in consultation with the BAAQMD.*
- *Plant shade trees per City Zoning Ordinance requirements in parking lots to reduce evaporative emissions from parked vehicles.*
- *Require that commercial landscapers providing services at the project site use electric or battery-powered equipment, or other internal combustion equipment that is either certified by the California Air Resources Board or is three years old or less at the time of use, to the extent that such equipment is reasonably available and competitively priced in the San Francisco Bay Area.*

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

Impact 4.1-4 **Operation of the proposed project would increase local traffic volumes, but would not expose sensitive receptors to substantial localized carbon monoxide (CO) concentrations. This would be considered a *less-than-significant* impact.**

While motor vehicles emit ozone precursors ROG and NO_x, they also generate CO, which is a directly emitted pollutant. CO levels are highest at intersections where there is congestion and traffic is slow. The proposed project would add traffic to existing roadways as part of the proposed project. To the extent that increases in traffic volumes lower the level of service (LOS), busy intersections could experience higher concentrations of CO. LOS "D" or worse results in conditions where traffic is no longer "free flow." The traffic section (see Section 4.4 [Transportation and Circulation]) identifies one intersection at Contra Costa Boulevard and Chilpancingo Parkway where the LOS would be D, E, or F during a.m. or p.m. peak hours. All other roadway intersections, due to lesser congestion and traffic, are expected to generate lower CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards. CO modeling results for the proposed project can be found in Table 4.1-6 (Carbon Monoxide Concentrations at Selected Locations); CO modeling results for cumulative conditions (buildout in 2018) can also be found in Table 4.1-6.

Table 4.1-6 Carbon Monoxide Concentrations at Selected Locations

Intersection	One-Hour Average CO (ppm)		Eight-Hour Average CO (ppm)	
	Existing	Existing Plus Project	Existing	Existing Plus Project
Existing Conditions				
Contra Costa Boulevard at Chilpancingo Parkway	5.5	8.5	2.1	4.2
Intersection	**One-Hour Average CO (ppm)**		**Eight-Hour Average CO (ppm)**	
	Cumulative	Cumulative Plus Project	Cumulative	Cumulative Plus Project
Cumulative Conditions[a]				
Contra Costa Boulevard at Chilpancingo Parkway	7.1	7.1	3.2	3.3

SOURCE: PBS&J, 2008. See calculation sheets in Appendix C.

Calculations reflect CO levels at the roadway edge.

There are no violations of ambient CO standards at receptor locations at the roadway edge of each intersection. Receptor locations further away would be exposed to even lower CO concentrations.

CO Background:[b]
- One-Hour Average—5.3 ppm
- Eight-Hour Average—2.0 ppm

Ambient CO Standards:
- One-Hour Average—Federal: 35 ppm; State 20 ppm
- Eight-Hour Average—Federal and State: 9 ppm

a. Cumulative baseline CO level calculations utilize CO emission factors in the year 2018.

b. One-Hour Average CO background calculated using BAAQMD methodology contained in ***BAAQMD CEQA Guidelines: Assessing Air Quality Impacts of Projects and Plans,*** December 1999, Page 41; Eight-Hour Average CO background obtained from highest CO concentration between the years 2004-2006 at the Concord – Treat Boulevard monitoring station.

As shown in Table 4.1-6, the modeling shows that 1-hour and 8-hour CO concentrations would not exceed the NAAQS or CAAQS under baseline plus project or cumulative plus project conditions. This would consequently be considered a ***less-than-significant*** impact.

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

Impact 4.1-5 **Development of the proposed project would have the potential to expose future on-site residents to substantial Toxic Air Contaminants (TACs). This is considered a potentially significant impact. Implementation of mitigation measure MM4.1-7 would reduce this impact to a *less-than-significant* level.**

Exposure from Stationary Sources. TACs are emitted from a variety of sources in the project vicinity. Two of the most common sources include stationary sources and mobile sources. For stationary sources, the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 air toxics and is the primary air contaminant legislation in the state. Under AB 2588, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high-priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. There are no stationary sources located in close proximity to the project site. However, there is one stationary source that currently exists on the

Hookston Station Area that reports its emissions to the CARB: the Tri City Concrete facility at 230 Hookston Road on the northernmost portion of the Hookston Station Area project site. The facility is completely surrounded by other light industrial and general commercial properties. Sensitive land uses, such as residential uses, are located approximately 200 feet west of the facility and 600 feet east of the facility. According to CARB, the facility has not exceeded the threshold that triggers preparation of a health risk assessment, but is required to report its emissions.[15] For 2005, the facility emitted 0.2 ton per year of PM, 0.2 tons per year of PM_{10}, and 0.1 ton per year of $PM_{2.5}$. Because a health risk assessment is not required, TAC is being effectively controlled at this facility so existing residences are not exposed to excessive concentrations.

New industrial uses could be developed under the proposed project in the Hookston Station area. If a facility that would produce a large source of TACs was proposed, permitting and operation of any such stationary source would be overseen by the BAAQMD and subject to Regulation 2 – Rule 2, New Source Review and Regulation 2—Rule 5, New Source Review of Toxic Air Contaminants, which would ensure that the risk from stationary TAC sources on-site would be reduced to levels below the BAAQMD's recommended thresholds of an individual cancer risk of ten in one million, or a hazard index of 1.0. Because TAC from existing and future stationary sources would be regulated by CARB and the BAAQMD, impacts would be considered ***less than significant***.

Exposure from I-680. Mobile sources (e.g., automobiles and diesel-fueled trucks) associated with project operation would also generate TACs. Traffic from local roads in the vicinity of the DVC Plaza Area and Hookston Station Area would not be high enough to produce TAC that would cause adverse health effects for sensitive receptors. For mobile sources, CARB's Air Quality and Land Use Handbook: A Community Health Perspective identifies only high traffic freeways and roads as a source of TACs that could present a potentially significant health risk and recommends that local land use agencies provide for specific "buffer zones" between these sources and nearby sensitive receptors. California freeway studies show about a 70 percent drop-off in particulate pollution levels at 500 feet. Recommendations from the CARB Handbook applicable to the proposed project include avoiding siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.[16]

Of primary concern would be the potential for exposure of future residents at the DVC Plaza Area to TACs from motor vehicle emissions along I-680. The northeastern portion of the DVC Plaza Area is located within 500 feet of I-680. Please refer to Figure 4.1-1 which shows the 500-foot buffer zone along the I-680 corridor. At this time it is unknown whether the proposed project would construct any of the residential units within the 500-foot buffer zone. Any residents located within this zone could be exposed to an inhalation cancer risk from TAC greater than the existing estimated risk of 250 to 500 cancer cases per 1 million people.[17] Thus, in compliance with guidance from the CARB, all sensitive land uses should

[15] California Air Resources Board, Facility Search Tool, <www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>, accessed May 2, 2008.
[16] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, p. 4.
[17] California Air Resources Board, Maps of Estimated Cancer Risk from Air Toxics, <www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm>, accessed November 16, 2007.

be located outside of the 500-foot I-680 buffer zone to reduce potential health risks from TAC. Because the proposed project has the potential to located residential uses within CARB's screening distance, this impact would be ***potentially significant***.

Mitigation Measure

The proposed project has the potential to expose future on-site residents to substantial TAC due to the proximity of the DVC Plaza Area to I-680. Implementation of mitigation measure MM4.1-7 would ensure that sensitive receptors would be located outside of the CARB's recommended buffer zone to reduce the inhalation cancer risk caused by TAC associated with high traffic volumes on I-680. Thus, impacts would be reduced to a ***less-than-significant level***.

MM4.1-7 *Residential development within the DVC Plaza Area shall be prohibited within the 500-foot buffer zone, as shown in Figure 4.1-1.*

Cumulative Impacts

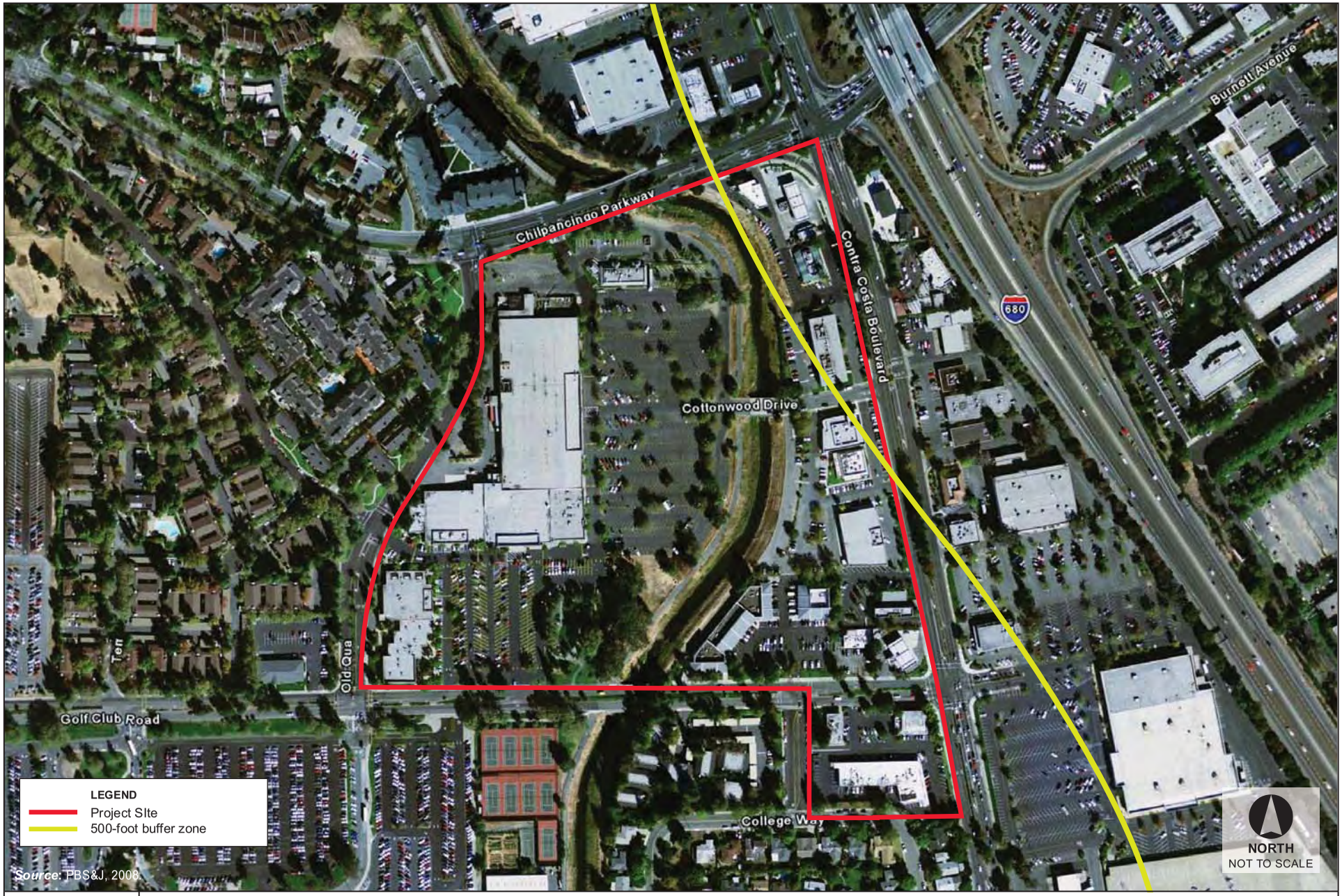
It should be noted that with respect to the following threshold, only the project's contribution to the cumulative impact is considered below:

- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

For clarification, this threshold essentially repeats the analysis provided in Impact 4.1-2 and Impact 4.1-3 and applies it to the cumulative condition, whereby any individual project that exceeds the BAAQMD recommended daily thresholds for project-specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state nonattainment pollutant. Because the Basin is currently in nonattainment for ozone (for which ROG and NO_x are precursors) and PM_{10} under federal and state standards, and is in nonattainment for $PM_{2.5}$ under state standards, the proposed project could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. The project's contribution is discussed in the cumulative context under construction and operation impacts below.

Within the Basin, the BAAQMD CEQA Guidelines state that any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. For any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impact should be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan. The appropriate regional air quality plan for the Bay Area is the most recently adopted CAP.[18]

[18] Bay Area Air Quality Management District, Planning and Research Division, *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plan,* December 1999, p. 19.



Source: PBS&J, 2008.

PBS&J

FIGURE **4.1-1**

500-Foot Toxic Air Contaminant Buffer Zone

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Pleasant Hill Commons

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The cumulative context of an air pollutant is dependent on the specific pollutant being considered. Ozone precursors are a regional pollutant; therefore, the cumulative context would be existing and future development within the entire Basin. This means that ozone precursors generated in one location do not necessarily have ozone impacts in that area. Instead, precursors from across the region can combine in the upper atmosphere and be transported by winds to various portions of the air basin. Consequently, all ozone precursors generated throughout the air basin are part of the cumulative context.

For localized pollutants such as PM_{10} and CO, the cumulative context would include existing and proposed future development in the immediate vicinity of the proposed project. The localized nature of PM_{10}, means that emissions generated by project-related activity would only affect the area in, and directly around, the project site. Consequently, only PM_{10} emissions from non-project sources near the project site could conceivably combine with project-emitted emissions and create a cumulative impact.

For CO, which is the product of fuel combustion, the cumulative context would be all existing and future traffic on local roads in the vicinity of the project site. The existing and future traffic would include all the development currently contributing to traffic volumes on the local roads analyzed in the traffic study, as well as all reasonable foreseeable future development, including the proposed project, that would contribute to traffic volumes on the local roads analyzed in the traffic study. Traffic associated with the project is accounted for in the traffic study prepared for the proposed project, and CO modeling uses the cumulative numbers in the traffic study. For the purposes of this analysis, the cumulative buildout year in the traffic study is 2018.

Impacts due to TAC are limited to the immediate vicinity of their specific sources. Thus, the cumulative context for TAC would be existing and proposed future development in the immediate vicinity of the project site.

Cumulative development in the City of Pleasant Hill would result in a significant impact in terms of conflicting with, or obstructing implementation of, the current CAP. As discussed in Impact 4.1-1, the Pleasant Hill General Plan is consistent with the CAP, and the existing zoning designations within the project site were originally assumed in the General Plan. Thus, the proposed project would not result in new emissions that were not already considered under the CAP and the project would not conflict with implementation of the CAP for attainment of criteria air pollutants. Thus, impacts regarding potential conflicts with the CAP would not be cumulatively considerable and would be considered ***less than significant***.

On-going construction activities that occur simultaneously with project construction in the entire Basin would contribute emissions of ozone precursors (ROG and NO_x). While those emissions would be temporary, combined they could exceed the BAAQMD thresholds. In addition, significant levels of PM_{10} and CO could be generated during project excavation, grading, and other construction activities. Specifically, PM_{10} and CO emissions, when combined with other construction projects in the vicinity of the project could be considerable. However, implementation of mitigation measures MM4.1-1 through MM4.1-4 would reduce the project's contribution to less than cumulatively considerable and this cumulative impact would be ***less than significant***.

The Basin is currently in non-attainment for ozone, PM_{10}, and $PM_{2.5}$. As future growth occurs in the basin, vehicle use and other activities would increase the amount of ozone precursors (ROG and NO_x) and particulate matter generated. Increases in air pollutants would further degrade air quality and make attainment of the CAP more difficult. In addition, operation of the proposed project would generate emissions that exceed the thresholds of significance recommended by the BAAQMD. Despite implementation of mitigation measures MM4.1-5 and MM4.1-6, the proposed project would exceed BAAQMD thresholds. Thus, the proposed project would make a cumulatively considerable contribution with regard to criteria pollutants, and this impact would be ***significant and unavoidable***.

Project-related CO impacts are evaluated in combination with CO emissions from other existing and future development. The traffic study prepared for the proposed project predicts future (2018) traffic volumes at nearby intersections for cumulative plus project conditions. This evaluation also takes into account traffic from other sources that would be in existence at this future date. It should be noted that it is unlikely that future projects would result in long-term future exposure of sensitive receptors to substantial pollutant concentrations, because CO levels are projected to be lower in 2018 due to improvements in vehicle technology resulting in lower emission rates predicted by the CARB. As discussed under Impact 4.1-4, maximum CO concentrations were determined by conducting modeling at the one project intersection that would have LOS D or below in 2018. Table 4.1-6 shows the expected maximum one-hour and eight-hour CO concentrations for this intersection in 2018 with buildout of the proposed project, and assumes cumulative traffic in the calculations. Even though the LOS would be further degraded in the future, CO levels under any scenario would not exceed the federal or state standards for CO. Therefore, the impact would be considered cumulatively ***less than significant***.

Exposure to TAC is related to a project's proximity to a stationary source or a mobile source, such as a roadway or freeway with high traffic volumes. Project development combined with other cumulative development in the project area is not expected to expose sensitive receptors to substantial TAC concentrations. For stationary sources, the BAAQMD establishes regulations and permitting requirements that would set stringent conditions on any proposed TAC source, which would protect sensitive receptors in the project vicinity from substantial TAC concentrations. For mobile sources, the development of projects in the City of Pleasant Hill could increase traffic volumes on local roadways and freeways, thus increasing the exposure of sensitive receptors to TAC, depending on the location of the project. As discussed in Impact 4.1-5, recommendations from the CARB Handbook include avoiding siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.[19] Future development projects would either site sensitive land uses outside of this buffer zone or, if placed within the 500-foot buffer area, would need to be evaluated on a project-by-project basis to determine the potential for exposure to TAC. CARB recommends completion of a Health Risk Assessment to determine risks to human health and compatibility of land uses adjacent to mobile sources of TAC, which would be performed under subsequent environmental review. However, as discussed in Impact 4.1-5, the proposed project's contribution to the cumulative impact is not considerable. Because the proposed project's contribution to the impact would not be considerable, this impact is considered ***cumulatively less than significant***.

[19] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, p. 4.

4.1.2 Climate Change

Environmental Setting

Climate Change Background

Global climate change refers to the change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. Projected climate changes could affect California's public health through changes in air quality, weather related disasters, and a possible increase in infectious disease. If extreme precipitation and severe weather events become more frequent, and if sanitation and water-treatment facilities have inadequate capacity or are not maintained, increases in infectious diseases may result.[20] The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. Many of the recent concerns over global climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gas emissions needed to stabilize global temperatures and climate change impacts. The IPCC predicted that the range of global mean temperature change from year 1990 to 2100, given different scenarios, could range from 1.1°C to 6.4°C. Regardless of analytical methodology, global average temperature and sea level are expected to rise under all scenarios.[21]

The IPCC's Assessment makes it clear that the impacts of future climate change will be mixed across regions. For example, according to the IPCC Fourth Assessment report, there may be large differences in regional population, income and technological development under alternative scenarios, which are often a strong determinant of the level of vulnerability to climate change. To illustrate, in a number of recent studies of global impacts of climate change on food supply, risk of coastal flooding and water scarcity, the projected number of people potentially affected is considerably greater in areas characterized by relatively low per capita income and large population growth. This difference is largely explained, not by differences in changes of climate, but by differences in vulnerability.[22]

Greenhouse Gas Emissions

Gases that trap heat in the atmosphere are called greenhouse gases (GHG), analogous to the way a greenhouse retains heat. Common GHG include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Global atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined

[20] California EPA, AB 1493 (Pavley) Briefing Package Global Warming and Greenhouse Gas Emissions from Motor Vehicles.
[21] Intergovernmental Panel on Climate Change, 2007. R.B. Alley et al. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers.
[22] Ibid.

from ice cores spanning many thousands of years. The accumulation of GHG in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHG, the earth's surface would be about 34°C cooler according to the California Climate Action Team Report (CAT Report) prepared in 2006. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas."[23] Individual GHGs have varying GWP and atmospheric lifetimes (see Table 4.1-7 [Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases]). The carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is carbon dioxide; carbon dioxide has a GWP of one. By comparison, methane's GWP is 21; thus, methane has a greater global warming effect than carbon dioxide on a molecule per molecule basis.[24] One million metric tons of carbon dioxide equivalent ($MMTCO_2e$) is the mass emissions of an individual GHG multiplied by its GWP.

Table 4.1 7 Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	*Atmospheric Lifetime (years)*	*Global Warming Potential (100 year time horizon)*
Carbon Dioxide	50-200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetraflouromethane (CF4)	50,000	6,500
PFC: Hexaflouroethane (C2F6)	10,000	9,200
Sulfur Hexaflouride (SF_6)	3,200	23,900

SOURCE: U.S. Environmental Protection Agency, U.S. Greenhouse Gas Inventory Program, Office of Atmosphere Programs, Greenhouse Gases and Global Warming Potential Values, April 2002.

Of all greenhouse gases in the atmosphere, water vapor is the most abundant, important, and variable. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

[23] U.S. Environmental Protection Agency, Office of Atmospheric Programs. April 2006. The U.S. Greenhouse Gas Emissions and Sinks: Fast Facts.
[24] U.S. Environmental Protection Agency. 2006. Non CO_2 Gases Economic Analysis and Inventory. Global Warming Potentials and Atmospheric Lifetimes.

Carbon dioxide (CO_2) is an odorless, colorless gas, which has both natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of carbon dioxide are from burning coal, oil, natural gas, and wood. The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 parts per million (ppm) to 379 ppm in 2005. As determined from ice cores, the atmospheric concentration of carbon dioxide in 2005 exceeds the natural range over the last 650,000 years (180 to 300 ppm). From 1995 to 2005, the annual carbon dioxide concentration growth-rate was 1.9 ppm per year, which is larger than it has been since the beginning of continuous direct atmospheric measurements from 1960 to 2005 at 1.4 ppm per year.[25]

Methane (CH_4) is a flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. There are no ill health effects from methane. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle. The global atmospheric concentration of methane has increased from a pre-industrial value of about 715 parts per billion (ppb) to 1,732 ppb in the early 1990s. The methane concentration in 2005 was 1,774 ppb. The atmospheric concentration of methane in 2005 exceeds by far the natural range of the last 650,000 years (320 to 790 ppb) as determined from ice cores. Growth rates have declined since the early 1990s, consistent with total emissions of anthropogenic and natural sources being nearly constant during this period.[26]

Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Higher concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, racecars, and as an aerosol spray propellant. The global atmospheric nitrous oxide concentration has increased from a pre-industrial value of about 270 ppb to 319 ppb in 2005. The growth rate has been approximately constant since 1980.[27]

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

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[25] Intergovernmental Panel on Climate Change. 2007. R.B. Alley, et al. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Summary for Policymakers.
[26] Ibid.
[27] Ibid.

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs for automobile air conditioners and refrigerants.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down though the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above the earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are over 70 parts per trillion (ppt).[28] The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest GWP of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Ozone (O_3)is a greenhouse gas; however, unlike other GHG, ozone in the troposphere is relatively short-lived and, therefore, its effects are not globally important. It is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides and volatile organic compounds) to global climate change.[29]

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Aerosols can also affect cloud formation. Sulfate aerosols are emitted when fuel-containing sulfur is burned. Black carbon (or soot) is emitted during bio mass burning or incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

Greenhouse Gas Emission Inventory

In 2004, total worldwide GHG emissions was estimated to be 20,135 $MMTCO_2e$, excluding emissions/removals from land use, land use change, and forestry (note that sinks, or GHG removal processes play an important role in the GHG inventory as forest and other land uses absorb carbon). In 2004, GHG emissions in the U.S. were 7,074.4 $MMTCO_2e$. In 2005, total U.S. GHG emissions were 7,260.4 $MMTCO_2e$, a 16.3 percent increase from 1990 emissions, while U.S. gross domestic product has increased by 55 percent over the same period. Emissions rose from 2004 to 2005, increasing by 0.8 percent. The main causes of the increase are attributable to (1) strong economic growth in 2005, leading to increased demand for electricity and (2) an increase in demand for electricity due to warmer summer conditions. However, a decrease in demand for fuels due to warmer winter conditions and higher fuel prices moderated the increase in emissions.

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[28] U.S. Environmental Protection Agency. 2006. High Global Warming Potential (GWP) Gases. Science. <www.epa.gov/highgwp/scientific.html>, accessed December 2006.

[29] California Environmental Protection Agency, Air Resources Board. July 21, 2004. Technical Support Document for Staff Proposal Regarding Reduction of Greenhouse Gas Emissions from Motor Vehicles Climate Change Overview.

California is a substantial contributor of GHG as it is the second largest contributor in the U.S. and the sixteenth largest in the world. In 2004, California produced 497 $MMTCO_2e$,[30] which is approximately 7 percent of 2004 U.S. emissions and 2.4 percent of global emissions. In California, the most common GHG is CO_2 from fossil fuel combustion, which constitutes approximately 81 percent of all GHG emissions.[31] The remainder of GHGs only make up a small percentage of the total: nitrous oxide constitutes 6.8 percent, methane 6.4 percent, high GWP gases 3.5 percent, and non-fossil fuel CO_2 emissions constitute 2.3 percent.[32] CO_2 emissions in California are mainly associated with fossil fuel consumption in the transportation sector (41.2 percent) with the industrial sector as the second-largest source (22.8 percent). Electricity production, from both in-state and out-of-state sources, agriculture, forestry, commercial, and residential activities comprise the balance of California's climate change emissions.

Based on these inventories of California GHG emissions, several emission reduction regulations have been established for the state. Through Executive Order (EO) S-3-05, the following GHG emission reduction targets were established: 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. The California Climate Action Team's Report (CAT Report) to the Governor in 2006, contains recommendations and strategies to help ensure the targets in Executive Order S 3-05 are met.[33] In addition to EO S-3-05, as part of the *California Global Warming Solutions Act of 2006* (AB 32), the CARB is required to establish a statewide GHG emissions cap for 2020 based on 1990 emissions. By January 1, 2008, CARB was to determine what the California GHG emission inventory was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level to be achieved by 2020. On December 6, 2007, CARB approved the recommended amount of 427 $MMTCO_2e$ as the total statewide GHG 1990 emissions level, which is also what California must reduce its emissions to by 2020. CARB also estimated the State's GHG emissions in 2020 without implementation of additional GHG reduction strategies. For the "business-as-usual" estimate in 2020, total emissions are approximated at 600 $MMTCO_2e$.[34]

Regulatory Framework

Because the effects of climate change present growing economic, social, and environmental risks around the globe, many states in the U.S. and governments around the world have taken action and made commitments to reducing GHG emissions and establish strategies for addressing this issue. Examples of international, national, and local regulations are discussed below.

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[30] California Air Pollution Control Officers Association, CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, January 2008, p. 8.
[31] State of California, Environmental Protection Agency, Climate Action Team, March 2006, Climate Action Team Report to Governor Schwarzenegger and the California Legislature, p. 11.
[32] Ibid.
[33] Ibid.
[34] California Air Resources Board, Staff Report, California 1990 Greenhouse Gas Emission Level and 2020 Emissions Limit, Public Release Date: November 16, 2007.

International

Montreal Protocol

The Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol governs compounds that deplete ozone in the stratosphere—chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform. The Protocol provided that these compounds were to be phased out by 2000 (2005 for methyl chloroform). In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC) to assess "the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation".[35]

United Nations Framework Convention on Climate Change

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments: "gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change."[36]

Kyoto Protocol

A particularly notable result of UNFCC efforts was a treaty known as the Kyoto Protocol. Countries signed the treaty to demonstrate their commitment to reducing GHG emissions or to engaging in emissions trading. More than 160 countries representing 55 percent of global emissions (not including the United States) are currently participating in the protocol. In 1998, U.S. Vice President Al Gore symbolically signed the Protocol; however, in order for the Protocol to be formally ratified the U.S. Congress must adopt it, which has not yet occurred.

Federal

U.S. Environmental Protection Agency

The U.S. EPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The EPA also has jurisdiction over emission sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

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[35] City of Ontario, Rich Haven Specific Plan EIR, Global Climate Change Analysis, June 28, 2007.
[36] Intergovernmental Panel on Climate Change. 16 Years of Scientific Assessment in Support of the Climate Convention, December, 2004.

As part of its enforcement responsibilities, the EPA requires each state with non-attainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

The EPA currently does not regulate GHG emissions from motor vehicles. In a recent court case, Massachusetts v. EPA (Supreme Court Case 05-1120) it was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that EPA regulate four GHG, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was rendered on April 2, 2007, in which the Court held that petitioners have standing to challenge the EPA and that the EPA has statutory authority to regulate emission of GHG from motor vehicles.

Lieberman-Warner Climate Security Act

The *Lieberman-Warner Climate Security Act* (S. 2191) is the first greenhouse gas cap-and-trade legislation approved by a full Congressional committee on December 5, 2007. The bill, as passed by the Senate Environment and Public Works Committee in an 11-8 vote, would establish a cap-and-trade program within the U.S. requiring a 70 percent reduction in GHG emissions from covered sources, which represent over 80 percent of total U.S. emissions. The bill as amended also includes complementary policies, such as a low carbon fuel standard and provisions aimed at enhancing energy efficiency. Taken together, the bill would reduce overall U.S. GHG emissions by 63 percent by 2050.[37]

State

California Air Resources Board

The CARB, a part of the California EPA (Cal EPA) is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

In addition to reducing emissions of criteria air pollutants under the CCAA, the CARB has been tasked with monitoring and reducing GHG emissions under AB 32. CARB is required to (1) establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008; (2) adopt mandatory reporting rules for significant sources of GHG by January 1, 2008; (3) adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources via

[37] The Pew Center on Global Climate Change, U.S. Federal Action on Climate Change, <www.pewclimate.org/federal/analysis/congress/110/lieberman-warner>, accessed April 15, 2008.

regulations, market mechanisms and other actions; (4) adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market mechanisms and alternative compliance mechanisms; (5) convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise ARB; (6) ensure public notice and opportunity for comment for all CARB actions; (7) prior to imposing any mandates or authorizing market mechanisms, requires CARB to evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities; and (8) adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.[38]

Senate Bill 700

In September 2003, the California Legislature adopted SB 700: Agriculture and Air Quality Summary and Implementation. This bill removed a long-standing statute that exempted agricultural operations from obtaining operating permits for sources of air pollution. The bill requires agricultural sources with emissions greater than or equal to one-half the threshold for a federal major source to obtain a permit, and sources that meet or exceed the threshold for a federal major source to obtain a federal operating permit from U.S. EPA or a local district with a federally approved federal operating permits program.

California Code of Regulations Title 24

Although it was not originally intended to reduce greenhouse gases, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments, made in October 2005, currently require new homes to use half the energy they used only a decade ago. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions.

California Assembly Bill 1493

California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.[39] California has the authority under the federal *Clean Air Act* to set its own air pollution standards if it can convince the federal EPA that the state faces "compelling and extraordinary conditions." If the EPA agrees, it issues the state a waiver, which opens the door for other states to

[38] California Air Resources Board, AB 32 Fact Sheet – California Global Warming Solutions Act of 2006, September 25, 2006, <www.arb.ca.gov/cc/factsheets/ab32factsheet.pdf>, accessed April 15, 2008.
[39] California Air Resources Board, December 10, 2004, Fact Sheet, Climate Change Emission Control Regulations.

adopt similar regulations. On December 19, 2007, the federal EPA denied California's request for the necessary waiver to implement AB 1493. Therefore, the state is now pursuing a lawsuit against the federal EPA.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets: 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. The California Climate Action Team's Report (CAT Report) to the Governor in 2006, contains recommendations and strategies to help ensure the targets in Executive Order S 3-05 are met.[40]

California Assembly Bill 32

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG in California. GHG as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the CARB, the state agency charged with regulating state-wide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to state-wide levels in 1990 by 2020. On or before June 30, 2007, CARB is required to publish a list of discrete early-action GHG emission reduction measures that can be implemented by 2010. The law further requires that such measures achieve the maximum technologically feasible and cost effective reductions in GHGs from sources or categories of sources to achieve the statewide greenhouse gas emissions limit for 2020.

AB 32 also requires that by January 1, 2008, CARB shall determine what the state-wide greenhouse gas emissions level was in 1990, and approve a state-wide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. While the level of 1990 GHG emissions has not yet been approved, reported emissions vary from 425 to 468 Tg CO_2 Eq. In 2004, the emissions were estimated at 492 Tg CO_2 Eq.[41]

CARB published its final report, Proposed Early Actions to Mitigate Climate Change in California, which describes recommendations for discrete early action measures to reduce GHG emissions in October 2007. The measures included are part of California's strategy for achieving GHG reductions under AB 32. One of the sources for the potential measures includes the CAT Report. Three new regulations are proposed to meet the definition of "discrete early action greenhouse gas reduction measures," which include the following: 1) a low carbon fuel standard; 2) reduction of HFC-134a emissions from non-professional servicing of motor vehicle air conditioning systems; and 3) improved landfill methane capture. CARB estimates that by 2020, the reductions from those three measures would be approximately 13–26 million metric tons of carbon dioxide equivalent.

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[40] State of California, Environmental Protection Agency, Climate Action Team, March 2006, Climate Action Team Report to Governor Schwarzenegger and the California Legislature.

[41] California Energy Commission, December 2006, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report.

Under AB 32, CARB has the primary responsibility for reducing GHG emissions. However, the CAT Report contains strategies that can be undertaken by many other California agencies. In addition, CARB staff are working on several non-regulatory measures including guidance documents and protocols to encourage the public, local government, and businesses to take positive steeps to reduce GHG emissions.

Executive Order S-01-07

Governor Arnold Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandates that a state-wide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The process for meeting the 2020 target includes coordination between Cal EPA, the University of California, and the California Energy Commission to develop and propose a draft compliance schedule to meet the 2020 Target by June 30, 2007. The order also requires that a Low Carbon Fuel Standard for transportation be established for California.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the California Energy Commission (CEC) was tasked with establishing a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO_2 per megawatt-hour). A "new long-term commitment" refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state's publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO_2 per megawatt hour.

Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (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. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcomes of this legislation will impact regional transportation powered by electricity.

Senate Bill 97

The provisions of Senate Bill 97, enacted in August 2007 as part of the State Budget negotiations, direct the Office of Planning and Research to propose CEQA Guidelines advising lead agencies how to mitigate the impacts of greenhouse gas emissions. OPR has been directed to promulgate such guidelines by July 2009, and the Resources Agency has been directed to adopt such guidelines by January 2010. At this time, however, there are no CEQA Guidelines or other formal direction from regulatory agencies regarding the analysis of greenhouse gas emissions.

Additional California Climate Change Initiatives

The Western Regional Climate Action Initiative was signed on February 26, 2007 by five states: (1) Washington, (2) Oregon, (3) Arizona, (4) New Mexico, and (5) California. British Columbia, Canada joined on April 20, 2007. The Initiative calls for collaboration to identify, evaluate, and implement ways to reduce GHG emissions in the states collectively and to achieve related co-benefits. The Initiative calls for designing a regional market-based multi-sector mechanism, such as a load-based cap and trade program by August 2008. In addition, a multi-state registry will track, manage, and credit entities that reduce GHG emissions. California is also exploring the possibility of cap and trade systems for greenhouse gases. The Market Advisory Committee to CARB published draft recommendations for designing a greenhouse gas cap and trade system for California.[42]

Local

Bay Area Air Quality Management District

Although the BAAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Bay Area. Instead, the BAAQMD has used its expertise and prepared the BAAQMD CEQA Guidelines to indirectly address these issues in accordance with the projections and programs of the Ozone Attainment Plan and Clean Air Plan. The BAAQMD CEQA Guidelines provide direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. BAAQMD also establishes air quality standards that development projects in the San Francisco Bay Area Air Basin should be evaluated by. These thresholds were developed by the BAAQMD to quantify and evaluate project air quality impacts. For the issue of climate change, however, to date, local jurisdictions, the state, the federal government, nor BAAQMD have developed specific greenhouse gas thresholds of significance for analyzing projects under CEQA.

City of Pleasant Hill

Local jurisdictions, such as the City of Pleasant Hill, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation, as necessary, of air emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality

[42] City of Ontario, Rich Haven Specific Plan EIR, Global Climate Change Analysis, June 28, 2007.

impacts of new development projects, mitigates potentially significant air quality impacts by conditional discretionary permits, and monitors and enforces implementation of such mitigation.

City of Pleasant Hill General Plan

The Pleasant Hill General Plan does not contain specific goals or policies that pertain to greenhouse gases or climate change.

Cumulative Impacts and Mitigation

Analytic Method

Currently, no state or regional regulatory agency has formally adopted or widely agreed upon thresholds of significance for greenhouse gas emissions, or issued guidance regarding the analysis of greenhouse gas emissions in EIRs. CEQA Guidelines §15064.7 states that "each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects." This provides justification for lead agencies to determine their own climate change thresholds. The Association of Environmental Professionals (AEP) recommends that "If a Lead Agency chooses to address GCC [Global Climate Change] in a [CEQA] document, it should be addressed in the context of a cumulative (versus project-specific) impact." The issue of global climate change is inherently a cumulative issue as the GHG emissions of individual projects in and of themselves cannot be shown to have any material effect on global climate. Therefore, this analysis focuses on the project's contribution to the global inventory of greenhouse gas emissions and the effect that climate change would have on the proposed project.

The California Air Pollution Control Officers Association prepared a white paper, CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the *California Environmental Quality Act* (January 2008), which evaluates the variety of analytical methods and modeling tools available today to estimate GHG emissions from a project and provides methodologies local jurisdictions can use to determine a project's contribution to the cumulative impact of global climate change. The white paper establishes three paths for establishing GHG significance criteria in a CEQA analysis: (1) no significance threshold for GHG emissions; (2) GHG emissions threshold set at zero; or (3) GHG threshold set at a non-zero level. Although the white paper explores the advantages and disadvantages of each method, it is not intended to require a district or jurisdiction to implement any of the approaches discussed in the paper. Instead it should be used to serve as a resource until such time that statewide guidance is established.[43]

Despite an absence of thresholds, ultimately the state must be in compliance with the requirements of AB 32, which include a reduction of GHG emissions to 1990 levels by 2020. As discussed in the Environmental Setting above, the state has estimated that its annual GHG emissions in 1990 were approximately 427 $MMTCO_2e$. However, based on this statewide number, it would be inaccurate to apply a standard GHG emission reduction requirement for all regions and sectors of the state in order to

[43] California Air Pollution Control Officers Association, *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act,* January 2008.

achieve the goals of AB 32. Different regions and jurisdictions have contributed to GHG emissions of the state at different levels. Thus, it is difficult to determine what the City of Pleasant Hill's responsibility to reducing GHG emissions would be without an inventory of GHG emissions specific to the city in 1990. It would be even more difficult to determine what level the proposed project would need to reduce its GHG emissions by because new development only contributes an excess of emissions that would push the state further from its target of 1990 GHG emissions.

Because no state or regional regulatory agency has formally adopted or widely agreed upon thresholds of significance for GHG emissions, or issued guidance regarding the analysis of GHG emissions in EIRs to date, the City of Pleasant Hill defers the establishment of thresholds to OPR, which has been directed to develop guidelines for the mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009 under SB 97. Until further guidance or thresholds are established, determining the proposed project's contribution to global climate change is based on both, a quantitative analysis of net GHG emissions, and a qualitative analysis of reductions in GHG emissions due to project design and mitigation measures. The potential effects of climate change on the proposed project are also discussed qualitatively.

The analysis below is organized into the following components: project inventory of GHG emissions, incorporation of GHG reduction measures, potential effects of climate change on the project, conclusion, and incorporation of additional measures to further reduce the project's GHG emissions and contribution to worldwide climate change.

1. **Project Inventory of Greenhouse Gases:** In California, fossil fuel consumption in the transportation sector is the single largest source of GHG emissions (41 percent). The industrial sector is the second largest source at 23 percent. Electricity production from both in-state and out-of-state sources contributes approximately 20 percent of California's GHG emissions. The remainder of GHG emissions are attributed to agriculture, forestry, commercial, and residential activities.[44] The cumulative effect of these human activities is altering the chemical composition of the atmosphere. Approximately 81 percent of GHG emissions are made up of CO_2 from fossil fuel combustion. The remainder of anthropogenic GHG emissions consist of non-fossil fuel CO_2 (2.3 percent), methane (6.4 percent), nitrous oxide (6.8 percent), and other high global warming potential gases (3.5 percent).[45]

   An inventory of project greenhouse gases (i.e., CO_2, CH_4, and N_2O), including motor vehicles, energy use, and solid waste sources, associated with the proposed project has been developed. CO_2 emissions are estimated using the URBEMIS 2007, version 9.2.4 model and include emissions from the largest direct sources such as motor vehicles. Direct emissions from natural gas combustion and indirect emissions from electricity generation were estimated using methodologies in the California Climate Action Registry General Reporting Protocol, Version 2.2 and the State Workbook: Methodologies for Estimating Greenhouse Gas Emissions.
2. **Compliance with AB 32:** Project compliance with the emission reduction strategies of the California Climate Action Team's (CAT) Report to the Governor is assessed. The CAT report proposes a path to achieve the Governor's greenhouse gas reduction targets contained in Executive Order S-3-05. While the CAT report and Executive Order S-3-05 do not specifically

[44] State of California, Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*, March 2006, pp. 9 and 10.
[45] Ibid, p. 11.

mention CEQA, they do include a list of various measures that can be employed to achieve the GHG reduction targets. Similar to Executive Order S-3-05, AB 32 also contains the same reduction target for the year 2020 (i.e., reduction of 2020 greenhouse gas emissions to 1990 levels).

3. **Incorporation of Greenhouse Gas Reduction Measures:** All circumstances where the project incorporates feasible greenhouse gas reduction features and mitigation are identified.
4. **Potential Environmental Effects of Climate Change on the Project:** While there are no uncertainties about the fact that human activities have significantly contributed to increased concentrations of GHG in the atmosphere resulting in an increase in average global temperature, there is uncertainty about predicting the timing and magnitude of other consequences of a warming planet, such as sea level rise, spread of diseases outside of their usual geographic range, effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, wildfires, extreme heat events, air pollution episodes, and effects to human health and the economy.[46] Because of this uncertainty, the potential effects of climate change on the proposed project are discussed qualitatively. This analysis does not concentrate on effects to the economy.

Thresholds of Significance

Because there are no thresholds of significance for a project's contribution to greenhouse gas emissions, the proposed project's impact on climate change is discussed using the methods described above.

Impact 4.1-6 **Implementation of the proposed project could contribute to world-wide climate change through the contribution of greenhouse gases. This impact would be cumulatively significant and unavoidable.**

Project Inventory of Greenhouse Gases

An inventory of the proposed project's three most important greenhouse gas emissions (i.e., CO_2, CH_4, and N_2O) is presented below. The emissions of the individual gases were estimated and then converted to their CO_2 equivalents (CO_2e) using the individually determined global warming potential (GWP) of each gas. Thus, total GHG emissions = total CO_2 emissions + total CO_2e emissions from CH_4 and N_2O.

Construction Emissions

While the specifics of construction activities for development of the proposed project are unknown at this time, it is important to note that although temporary, construction activities result in emissions of GHG. The project would emit greenhouse gases during construction of the project from the operation of construction equipment and from worker and building supply vendor vehicles. Although construction emissions were not quantified (modeling of construction activities is not required by BAAQMD), construction activities are expected to emit the following GHG in addition to CO_2: N_2O, CH_4, chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

[46] State of California, Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*, March 2006, p. 16.

Operational Emissions

Motor Vehicle Greenhouse Gas Emissions

Once the project is built, the largest source of greenhouse gas emissions would be on- and off-site motor vehicle use. CO_2 emissions, the primary greenhouse gas from mobile sources, are directly related to the quantity of fuel consumed. Two important determinants of transportation-related greenhouse gas emissions are vehicle miles traveled (VMT) and vehicle fuel efficiency. VMT in the State of California has steadily increased over the last quarter-century. According to 2006 data for Contra Costa County, annual County VMT was 4,678,700,000. The total annual VMT for the state was approximately 182,491,000,000 in 2006.[47] Contra Costa VMT makes up approximately 2.6 percent of the VMT in all of California.

CO2 emissions during operation of the project at full buildout were estimated using the traffic data provided in Section 4.4 and using URBEMIS 2007 to model the results, as shown in Table 4.1-8 (Estimated Project Operational CO_2 Emissions from Motor Vehicles at Full Buildout in Year 2018). Total CO_2 emissions would be 14,023.09 tons per year, which is 0.003 percent of California's 2004 emissions (i.e., 478.7 million tons). The project inventory is 0.0002 percent of 2005 U.S. emissions (i.e., 8003.1 million tons) and 0.00006 percent of reported 2004 global emissions (i.e., 22,195 million tons).

Table 4.1-8 Estimated Project Operational CO_2 Emissions from Motor Vehicles at Full Buildout in Year 2018

Project Land Use Type	*Annual CO_2 Emissions (Tons per Year)*
Medium Density Residential	2,859.60
Commercial	10,984.89
Industrial	214.60
Total	14,023.09 tons CO_2 per year

SOURCE: PBS&J, 2008. See Appendix C.

Although motor vehicle energy consumption would increase under the proposed project, the transportation improvements proposed for the project are designed to improve circulation system levels of service. Any reductions in traffic congestion realized through implementation of enhanced transit operations would also allow for more energy-efficient vehicular travel.

It is important to note that this CO_2 emissions estimate for vehicle trips associated with the proposed project is likely much greater than the emissions that would actually occur. The analysis methodology used for the emissions estimate conservatively assumes that all emissions sources (in this case, vehicles) are new sources and that emissions from these sources are 100 percent additive to existing conditions. This is a standard approach taken for air quality analyses. In many cases, such an assumption is appropriate because it is impossible to determine whether emissions sources associated with a project move from outside the air basin and are in effect new emissions sources in that basin, or whether they are sources that were already in the air basin and just shifted to a new location. However, because the

[47] California Department of Transportation, Traffic Data Branch, County Vehicle Miles of Travel, <www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>, accessed May 5, 2008.

effects of GHGs are global, a project that merely shifts the location of a GHG-emitting activity (e.g., where people live, where vehicles drive, or where companies conduct business) without increasing total emissions would result in no net change in GHG emissions levels globally. To accurately account for carbon dioxide emissions attributable to the project, it would be necessary to differentiate between new sources that otherwise would not exist but for the project, and existing sources that have simply relocated to the project area (presumably, from any place in the world). For example, if a substantial portion of California's population migrated from the South Coast Air Basin (managed by the South Coast Air Quality Management District) to the San Joaquin Valley Air Basin (managed by the San Joaquin Valley Air Pollution Control District), this population shift would likely result in decreased emissions in the South Coast Air Basin and increased emissions in the San Joaquin Valley Air Basin, but little change in overall global GHG emissions. However, if a person moves from one location where the land use pattern requires substantial vehicle use for day-to-day activities (commuting, shopping, etc.) to a new development that promotes shorter and fewer vehicle trips, more walking, and overall less energy usage, it could be argued that the new development would result in a potential net reduction in global GHG emissions (not considering any emissions associated with the construction of new infrastructure, buildings, and other human-created features).

It is impossible to know at this time whether residents or visitors or others in the proposed project area would have longer or shorter commutes relative to their existing homes or offices; whether they would walk, bike, and use public transportation more or less than under existing circumstances; and whether their overall driving habits would result in higher or lower VMT. Much of the vehicle-generated CO_2 emissions attributed to the project could simply be from vehicles currently emitting CO_2 at an existing location moving to the project site, and not from new vehicle emissions sources relative to global climate change. Therefore, although it is not possible to calculate the net contribution of vehicle generated CO_2 emissions from the proposed project (i.e., project generated emissions minus current emissions from vehicles that would move to the project site), the net CO_2 contribution would likely be much less than the 14,023.09 tons of CO_2 per year calculated above.

Numerous factors that can substantially affect the project's CO_2 emissions (structural designs, type of building occupants, hours of operation) would not be fully known until buildout is complete. In addition, the discussion above identifying that net/actual CO_2 emissions from project generated vehicle trips would be much less than calculated also applies to all other emission sources. Every new resident at the project site would be moving from an existing location where their activities are currently contributing to CO_2 emissions. Similar to CO_2 emissions from vehicles, it is not possible to calculate the net CO_2 emissions from other sources (i.e., commercial uses) because information on the existing behavior of businesses that would ultimately move to the project site cannot be determined. It is also unknown whether the homes into which project residents would move would be more or less energy efficient than their existing residences (though new homes are generally more efficient than older homes), how many and which types of businesses on the project site might be new facilities or relocations of existing facilities, and whether facilities and operations of relocated businesses might result in more or less overall CO_2 emissions relative to existing conditions. However, it is certain that much of the CO_2 emissions attributed to project residents and businesses would simply be from emissions sources that move from an existing location to the project site, not from new emissions sources relative to global climate change.

It should also be noted that the emissions calculations described above do not take into account reductions in GHG emissions resulting from implementation of AB 32. Stationary emissions sources that serve the project site (e.g., power plants) would be subject to emissions reductions requirements of AB 32. The extent of these reductions has not yet been quantified by CARB. At the time of project buildout, overall CO_2 emissions attributable to the proposed project could be substantially less than current emissions assumptions might indicate. Similarly, if GHG emissions reductions for vehicles are enacted, through either the requirements of AB 1493 or AB 32 or a federal regulation, CO_2 emissions from the project would be further reduced. If regulations proposed to comply with AB 1493 survive current legal challenges, CO_2 emissions from vehicles associated with the project could be 20 percent to 30 percent less than under current conditions. If AB 1493 is repealed, it is unclear what vehicle emissions limits might be adopted as part of AB 32.

Emissions reduction requirements associated with AB 1493, AB 32, SB 1368, and Executive Order S-3-5 would apply throughout California. Therefore, beyond the fact that their effect on the project is unclear, their effect on the overall cumulative context relative to all GHG emissions in California is also unknown. Even if California meets its emissions reductions targets, such progress would not by itself significantly alter the current worldwide phenomenon of climate change, as worldwide cooperation is still necessary to achieve real progress.

Thus, the model and methodologies used in this analysis evaluate and model aggregate emissions. With respect to the global impact of climate change, however, these models do not demonstrate how much these aggregate emissions relating to a particular project are "new" emissions specifically attributable to development pursuant to the proposed plan. For example, while motor vehicle GHG emissions are accounted for in Table 4.1-8, many (and perhaps the large majority) of drivers who would be going to and from to the proposed development are already driving (because they live in the community) and generating GHG emissions in some other location, and they would effectively relocate those emissions as the project is developed. Therefore, in evaluating the project's contribution to greenhouse gas emissions, these aggregate emission figures are disclosed, but the determination of significance is based upon the consistency of the project with AB 32 and mitigation measures such as those that have been recommended by the California Climate Action Team.

Other Greenhouse Gas Emissions

Electricity and Natural Gas Combustion Greenhouse Gas Emissions

The proposed project would use electricity for its commercial, residential, and light industrial land uses, which would contribute to greenhouse gas emissions. The generation of electricity through the combustion of fossil fuels typically yields CO_2 and, to a much smaller extent, CH_4 and N_2O. In order to determine emissions from electricity consumption, annual electricity use must be established. The project related electricity emissions were estimated by using the following electricity and natural gas generation rates:

For electricity:

Residential: 5,626.5 kilowatt hour per dwelling unit (du) per year

Commercial: 13.55 kilowatt hour per sf per year

Industrial: 15.3 kilowatt hour per sf per year

For natural gas:

Residential: 4,011.5 cubic feet per du per month

Commercial: 2.9 cubic feet per sf per month

Industrial: 2.9 cubic feet per sf per month

The GHG emissions factors for electricity use and natural gas combustion were obtained from the California Climate Action Registry (CCAR 2007). Greenhouse gas emissions from these two sources are as shown in Table 4.1-9 (Project Operational Greenhouse Gas Emissions from Electricity Use) and Table 4.1-10 (Project Operational Greenhouse Gas Emissions from Natural Gas Combustion), below.

Table 4.1-9 Project Operational Greenhouse Gas Emissions from Electricity Use

Geographic Region and Emissions Source	Energy Use MWh/year	N_2O (Tons)[a]	N_2O CO_2e (Tons)	CO_2 (Tons)[b]	CH_4 (Tons)[c]	CH_4 CO_2e (Tons)	Total CO_2e (Tons)
State of California (2005)	272,449,000	504	156,250	109,598,059	913	19,167	109,773,476
Project	3,991	0[d]	2.3	1,605	0[d]	0.3	1,608

SOURCE: PBS&J, 2007. California Energy Commission. California Energy Demand 2008-2016. November 2007. See Appendix C for calculations.

a Emissions Factor of .0037 was used for N_2O.

b Emissions Factor of 804.54 was used for CO_2.

c Emissions Factor of .0067 was used for CH_4.

d Value is equal to or less than 0.04 tons.

Table 4.1-10 Project Operational Greenhouse Gas Emissions from Natural Gas Combustion

Geographic Region and Emissions Source	Energy Use Therms/year	N_2O (Tons)	N_2O CO_2e (Tons)	CO_2 (Tons)	CH_4 (Tons)	CH_4 CO_2e (Tons)	Total CO_2e (Tons)
State of California (2005)	13,039,000,000	144[a]	44,556	75,888,858[b]	8,480	178,080	76,111,494
Project[c]	202,675	0[d]	0.7	1,180	0.13	2.8	1,183

SOURCE: PBS&J, 2008. California Energy Commission. California Energy Demand 2008-2016. November 2007. See Appendix C for calculations.

a Data from 2004 Statewide Inventory.

b Data from 2004 Statewide Inventory.

c Calculated for each area by multiplying annual kWh per year of energy use x natural gas emissions factor.

d Value is equal to or less than 0.04 tons.

It should also be noted that the project would also place an incremental demand on wastewater and water treatment facilities to serve the project, which also emit GHG emissions to run all the equipment.

Solid Waste Greenhouse Gas Emissions

Because the project involves residential and commercial uses, solid waste generated by the project would also contribute to greenhouse gas emissions through the off-gassing of methane. The City transports all its solid waste to the Keller Canyon Landfill. Treatment and disposal of municipal, industrial, and other

solid waste produces significant amounts of CH_4. In addition to CH_4, solid waste disposal sites also produce biogenic CO_2 and non-methane volatile organic compounds (NMVOCs) as well as smaller amounts of N_2O, NO_x and CO. CH_4 produced at solid waste sites contributes approximately 3 to 4 percent to the annual global anthropogenic greenhouse gas emissions.

In many industrialized countries, waste management has changed much over the last decade. Waste minimization and recycling/reuse policies have been introduced to reduce the amount of waste generated, and increasingly, alternative waste management practices to solid waste disposal on land have been implemented to reduce the environmental impacts of waste management. Also, landfill gas recovery has become more common as a measure to reduce CH_4 emissions from solid waste disposal sites.

CH_4 and CO_2 emissions from solid waste generated by the project were estimated based on formulas provided in the State Workbook: Methodologies for Estimating Greenhouse Gas Emissions (pages 5-1 to 5-3). Estimates were obtained by multiplying the tons of solid waste landfilled annually (using generation factors from the California Integrated Waste Management Board [CIWMB]) by the percent of degradable material they contain, by the percent dissimilated and by the pounds of gas produced per pound of biomass). Landfill gas is approximately 50 percent CH_4 and 50 percent CO_2. Total project emission of greenhouse gases from landfill material is shown in Table 4.1-11 (Project Operational Greenhouse Gas Emissions from Solid Waste) below. N_2O emissions from landfills are considered negligible (because the microbial environment in landfills is not very conducive to the nitrification and denitrification processes that result in N_2O emissions) and are; therefore, not explicitly modeled as part of greenhouse gas emissions generated through solid waste.

Table 4.1-11 Project Operational Greenhouse Gas Emissions from Solid Waste

Geographic Region and Emissions Source	*Solid Waste (tons/year)*[1]	*CH_4 CO_2e (tons)*	*CO_2(tons)*	*Total CO_2e (tons)*
State of California (2005)	38,789,018	33,618,907	2,801,576	36,420,483
City of Pleasant Hill (2005)	30,228	26,199	2,183	28,382
Project	1,113	965	80	1,045

SOURCE: PBS&J, 2008. California Integrated Waste Management Board. California Waste Stream Profiles. <www.ciwmb.ca.gov/Profiles/>

[a] Landfill gas emissions = tons landfilled x.22x.77x.67.

Ozone

Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and therefore is not global in nature. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors (ROG and NO_x) to climate change. Therefore, it is assumed that project emissions of ozone precursors would not significantly contribute to global climate change. At present, there is a federal ban on CFCs; therefore, it is assumed the project would not generate emissions of these greenhouse gases. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used in the project and the capacity of these are unknown at this time. PFCs and sulfur hexafluoride are typically used in

industrial applications, none of which would be used by the project. Therefore, it is not anticipated the project would contribute significant emissions of these additional greenhouse gases.

Project Compliance with AB 32

Under AB 32, CARB has the primary responsibility for reducing greenhouse gas emissions. However, the CAT Report contains strategies that many other California agencies can implement. The CAT published a public review draft of Proposed Early Actions to Mitigate Climate Change in California.[48] Most of the strategies contained in the draft report were in the 2006 CAT Report or are similar to the 2006 CAT strategies and are focused on either state controlled programs or towards local jurisdictions and not a specific project. Therefore, assessing the project's compliance with the 2006 CAT report would not be applicable for this project. As the state, county, and city implement programs associated with AB 32, future residents within the project area would be required to comply with these programs which would achieve the reductions intended in AB 32.

Project Incorporation of Greenhouse Gas Reduction Measures

For the proposed project, the total of annual CO_2e emissions is estimated at 17,859.09 tons. Based on project's operational greenhouse gas emissions estimates, project emissions would add to the global inventory of greenhouse gas emissions. The net increase in greenhouse gas emissions from the project in relation to California's current greenhouse gas emissions (478.65 million tons, according to the 2004 inventory), would be 0.0037 percent at the buildout year 2018. Based on the quantitative analysis above, it is anticipated that the project's contribution to GHG emissions would be cumulatively considerable absent any specific thresholds from the state that define acceptable amounts of GHG emissions.

The Draft EIR contains mitigation measures that would help reduce the project's operational emissions of GHG. Mitigation measures MM4.1-1 through MM4.1-7 would reduce the project's emissions of ROG, NO_x, PM_{10}, and CO, as well as emissions of GHG. Thus, the reduction of criteria air pollutant emissions through these mitigation measures would also help decrease emissions of GHG.

In addition to City policies and ordinances, existing federal and state programs are credited with reducing GHG in California. The City requires compliance with the California Energy Commission's Title 24 energy efficiency standards for buildings. The City's General Plan also contains policies that promote the use of alternative fuel vehicles, encourage the use of electric equipment, synchronizing traffic signals on roads to prevent vehicle idling, giving preference to firms using reduced-emission equipment for City contracts, developing a tree-planting strategy, and working with local and regional agencies to develop strategies to reduce vehicle trips. All of these policies would help reduce the production of greenhouse gases throughout the city.

The City also is a member of the Association of Bay Area Governments (ABAG), which covers a nine-county area. ABAG leads a number of regional planning programs that helps unify the entire bay area region. The Bay Area Green Business Program is a voluntary partnership of businesses, government

[48] State of California, Environmental Protection Agency, Climate Action Team. Climate Action Team Proposed Early Actions to Mitigate Climate Change in California. Draft for Public Review. April 20, 2007.

agencies, professional associations, and utility providers that verifies and recognizes businesses which operate in an environmentally responsible way. The Program helps businesses comply with environmental regulations, and then go beyond compliance to conserve energy, water, and other resources, and reduce pollution and waste and in turn, GHG emissions.

Another program called Focusing Our Vision, or "FOCUS," seeks to build upon existing progress related to smart growth and combine local and regional objectives into a more refined development strategy for the Bay Area. Through FOCUS, ABAG works with local governments and stakeholders to identify local and regional priority areas for development and conservation. The FOCUS project is a joint project of ABAG, the Metropolitan Transportation Commission, and the BAAQMD. ABAG provides guidance for local jurisdictions to follow smart growth principles by encouraging a variety of transportation choices; offering housing choices and opportunities; taking advantage of compact development; using existing assets; promoting mixed land uses; and preserving open space, farmland, natural beauty, through natural resources conservation.

ABAG also represents local and regional governments on the Steering Committee of the Bay Area Alliance for Sustainable Communities. The Bay Area Alliance brings together government officials and private-sector leaders representing economy, environment, and social equity to address housing, transportation, environmental quality, jobs and related issues. The Bay Area Alliance has published a Compact for a Sustainable Bay Area that is intended to illustrate how the region can grow more sustainably, and serve as a framework to guide future action.

In addition to ABAG, the Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area. MTC is responsible for regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The MTC also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan. Adopted in February 2005, the most recent edition of this long-range plan, known as Transportation 2030, promotes "smart growth" development patterns which includes transit oriented development, regional growth planning, alternative modes of transportation for livable communities, transit station area plans, and innovative parking policies that support transit oriented development and infill.

Through regional development and transportation plans, smart growth development patterns create opportunities for people to choose alternative ways of getting from place to place that does not include a single-occupancy vehicle trip. Reducing VMT through site design and increased transit opportunities equates to reduction in GHG emissions. The proposed project consists of an infill project that places commercial, office, and light industrial land uses in close proximity to public transit and existing residential uses. This allows for people to live near their job, the services they need, and the amenities they want. The proposed project also includes 300 residential units on the DVC Plaza Area which would be multi-family, mixed-use dwelling units close to restaurants and retail. Application of these smart growth planning concepts in the proposed project help to reduce the emission of GHG by reducing vehicle trips, promoting alternative transportation, and developing a smart growth project that, overall,

reduce the population's reliance on motor vehicle use and reduces the distance of any necessary vehicle trips.

Effects of Climate Change on the Proposed Project

While there are no uncertainties about the fact that human activities have significantly contributed to increased concentrations of greenhouse gases in the atmosphere resulting in an increase in average global temperature, there is uncertainty about predicting the timing and magnitude of other consequences of a warming planet, such as sea level rise, spread of diseases outside of their usual geographic range, effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and effects on human health and the economy.[49]

The IPCC Special Report on Emissions Scenarios (SRES) has developed a set of possible future greenhouse gas emissions scenarios based on different assumptions about global development. Based on a recent analysis for California of SRES emission scenarios, there are three emissions scenarios: a higher emissions scenario, a medium-high emissions scenario, and a lower emissions scenario. It is important to note that even at the lower emissions scenario, increases in global temperature are predicted to be between 1.7 and 3.0 degrees Celsius (°C). In the medium-high emissions scenario and the higher emissions scenario, temperatures are predicted to increase between 3.1 and 4.3°C and 4.4 to 5.8°C, respectively. To understand the magnitude of these projected temperature changes over the next century, the lower range of projected temperature rise is slightly larger than the difference in annual mean temperature between Monterey and Salinas, and the upper range of project warming is greater than the temperature difference between San Francisco and San Jose.[50] These predicted increases in temperature can affect the amount, timing, and form of precipitation, whether rain or snow, that California receives, as well as the sea level of the Pacific Ocean. Furthermore, changes in weather, especially temperature, and atmospheric composition can affect water use and consumption. Precipitation is generally more difficult to project with high confidence than temperature; however, the IPCC Working Group 1 found that over 90 percent of models agreed on the precipitation changes in regions of high latitudes and Mediterranean climates, like that of California, where decreased precipitation combined with higher temperatures are major concerns for water shortages, heat waves, wild fires, and extreme air pollution events.[51]

Conclusion

Implementation of the proposed project would generate GHG emissions through the construction and operation of new residential, commercial, and limited industrial land uses. As discussed above, the project is designed and would be developed to minimize the amount of GHG emitted. However,

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[49] State of California, Environmental Protection Agency, Climate Action Team, March 2006, Climate Action Team Report to Governor Schwarzenegger and the California Legislature, p. 16.
[50] Ibid., pp. 19-24.
[51] Stephen H. Schneider, Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Professor, Department of Biological Sciences Senior Fellow, Woods Institute for the Environment Stanford University, *The Unique Risks to California From Human-Induced Climate Change*, May 22, 2007, <www.energy.ca.gov/publications/displayOneReport.php?pubNum=ARB-1000-2007-005>, accessed April 8, 2008.

because the project would generate an increase in motor vehicles, which is a major contributor to GHG emissions, based on the currently available information the project is estimated to produce 0.0037 percent of GHG at project buildout. Combined with the additional development anticipated to occur in the city, county, region, and the state, the project's incremental contribution would be considerable. Until the state develops specific thresholds that define acceptable amounts of GHG emissions, the project is considered a contributor to an increase in GHG.

It is clear that the proposed project's net contribution of CO_2 to global climate change would be substantial, a great deal of uncertainty exists regarding what the net CO_2 emissions would actually be under cumulative conditions. In addition, it is uncertain how current regulations might affect CO_2 emissions attributable to the project and cumulative CO_2 emissions from other sources in the cumulative global context. Also, as described previously, it cannot be determined how CO_2 emissions associated with the proposed project might or might not influence actual physical effects of global climate change. For these reasons, it is uncertain whether the proposed project would generate a substantial increase in GHG emissions relative to existing conditions, and whether emissions from the proposed project would make a cumulatively considerable incremental contribution to the significant cumulative impact of global climate change. Therefore, for this analysis, a conservative approach is taken and the proposed project is considered to make a ***cumulatively considerable*** incremental contribution to the cumulative impact of global climate change.

Mitigation Measure

The following mitigation measures would help to offset the project's contribution to GHG emissions. Implementation of the following mitigation measures would substantially lessen GHG emissions within the project site, but would not mitigate them to a level that is less than significant. Therefore, this impact would remain cumulatively ***significant and unavoidable***.

MM4.1-8 *In order to incorporate passive solar building design and landscaping conducive to passive solar energy use, the proposed project shall include the following measures:*

- *Encourage the orientation of buildings to be in a south to southwest direction, where feasible.*
- *In all residential units, include energy-efficient window glazings, wall insulation, and efficient ventilation.*
- *Landscaping plans shall prohibit the use of liquidambar and eucalyptus trees that produce smog-forming compounds (high emission factors for isoprenes).*
- *Use light colored roof materials to reflect heat.*
- *Where feasible and appropriate, use light colored parking surface materials.*

MM4.1-9 *The following measures shall be used singularly or in combination to accomplish an overall reduction of 10 to 20 percent in residential energy consumption relative to the requirements of State of California Title 24:*

- *Use of air conditioning systems that are more efficient than Title 24 requirements with automated controls*

- *Use of Energy Star heating and other appliances, such as water heaters, cooking equipment, refrigerators, dishwashers, furnaces, and boiler unit*
- *Installation of photovoltaic rooftop energy systems, where feasible*
- *Establishment of tree-planting guidelines that encourage each project applicant to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included in the guidelines*

MM4.1-10 *The project applicant or its successor(s) in interest shall provide each residence and business with an information packet that shall contain, at a minimum, the following information:*

- *Commute options: to inform residents and employees of the alternative travel amenities provided, including public transit availability/schedules*
- *Maps showing city-wide pedestrian and bicycle path*
- *Information regarding BAAQMD programs to reduce city and county-wide emissions*

MM4.1-11 *Prioritized parking within the commercial area shall be given to electric vehicles, hybrid vehicles, and alternative fuel vehicles.*

MM4.1-12 *The following building and design measures shall be considered during the planning of any development within the proposed project site and incorporated into the project, as feasible:*

Architectural Items

- *Specified products shall consider locally produced and manufactured items, where appropriate.*
- *The specified products shall include options for use of recycled content, if available.*
- *Exterior wall systems shall be fully insulated beyond minimum Energy Code standards.*
- *The roofing systems shall include insulation that meets or exceeds minimum Energy Code requirements.*
- *All windows shall specify insulated Low-E glass with thermal break window frame systems.*

Mechanical & Plumbing Systems

- *Variable Frequency Drives (VFDs) shall be specified for hot and chilled compressors and water pumps.*
- *"Low flow" water efficient fixtures shall be installed, where appropriate.*
- *Electronic faucets shall be used, where appropriate.*
- *Hot water circulating systems shall be installed that minimize wait time and water loss at fixtures. The systems shall be specified to operate on a timer to maximize hot water system efficiency.*

Electrical Systems

- *Use occupancy sensors shall be included for all areas allowed by code, such as offices and conference rooms.*
- *Use VFD's as a means of motor starting on mechanical equipment.*

- *Energy star rated motors and fixtures shall be specified for the project.*

Landscape

- *The landscape plans shall be designed for the use of drought tolerant plant species wherever possible in order to avoid excessive water demand.*
- *Use of mulch shall be used for landscape areas to further retain moisture.*

Irrigation

- *Irrigation systems shall be designed so that the application rate does not exceed the infiltration rate of the soil, and will minimize overspray and runoff.*
- *Rain sensors shall be installed that interrupt the normal irrigation cycle when significant amounts of rainfall are detected.*

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4.2 LAND USE AND PLANNING

This section of the EIR examines the consistency of the proposed adoption and implementation of amendments to add the Diablo Valley Center (DVC) Plaza and Hookston Station Areas to the Commons Redevelopment Plan (Commons Plan) with adopted City of Pleasant Hill plans and policies. Specifically, this section analyzes whether the proposed project would physically divide an established community or conflict with applicable land use plans, policies, and regulations or an adopted habitat conservation or natural community conservation plan.

Preparation of this analysis used data from the City of Pleasant Hill General Plan (2003), City of Pleasant Hill Municipal Code, and the Pleasant Hill Commons Redevelopment Plan (1974). Full bibliographic entries for all reference materials are provided in Section 4.2.5 (References) of this section.

4.2.1 Environmental Setting

City of Pleasant Hill

The City of Pleasant Hill is located in central Contra Costa County and is bordered to the south by Walnut Creek, the north by Martinez and Pacheco, the east by Concord, and the west by Lafayette. Pleasant Hill encompasses approximately 8.2 square miles (including 2 square miles of roads) and is accessed regionally by Interstate 680 (I-680) from the north and south and SR-242 from the east. Residential areas, which are primarily located west of I-680, represent a large percentage of the City's land uses. Commercial uses are spread out along the I-680 and Contra Costa Avenue corridors in a north-south direction. Light Industrial uses are concentrated in the southeast area of the City.

Proposed Project Site

The proposed project consists of the adoption and implementation of amendments to add the DVC Plaza and Hookston Station Areas to the Commons Plan. A description of existing land uses within each area and land uses surrounding each area is provided below.

DVC Plaza Area

The DVC Plaza Area is located in the northern portion of the City adjacent to I-680, approximately 1½ mile to the north of the Commons Project Area. The boundaries of the 31.85-acre DVC Plaza area extend eastward from Old Quarry Road to Contra Costa Boulevard between Chilpancingo Parkway and Golf Club Road, including the Contra Costa County Flood Control channel. Land uses within the DVC Plaza Area currently consist of 302,303 square feet (sf) of office and commercial development. Chilpancingo Park, a 2.5-acre park located along Golf Club Road, is also located within the DVC Plaza Area. As shown in Figure 4.2-1 (Aerial Overview), land uses in the vicinity of the DVC Plaza Area include residential and office uses to the west, commercial uses to the north and east, and residential, educational, and commercial uses to the south.

Hookston Station Area

The Hookston Station Area is located in the eastern portion of the City, less than 600 feet southeast of the Pleasant Hill Commons Redevelopment Project Area. The boundaries of the 9.86-acre Hookston Station Area extend in a southerly direction from Hookston Road to Mayhew Way between Vincent Road and the former Southern Pacific Railroad (SPRR) right-of-way. Land uses within the Hookston Station Area currently consist of 151,846 sf of light industrial development. As shown in Figure 4.2-1 (Aerial Overview), land uses in the vicinity of the Hookston Station Area include industrial and residential uses to the east, residential uses to the south, and industrial/warehouse/commercial uses to the west and north.

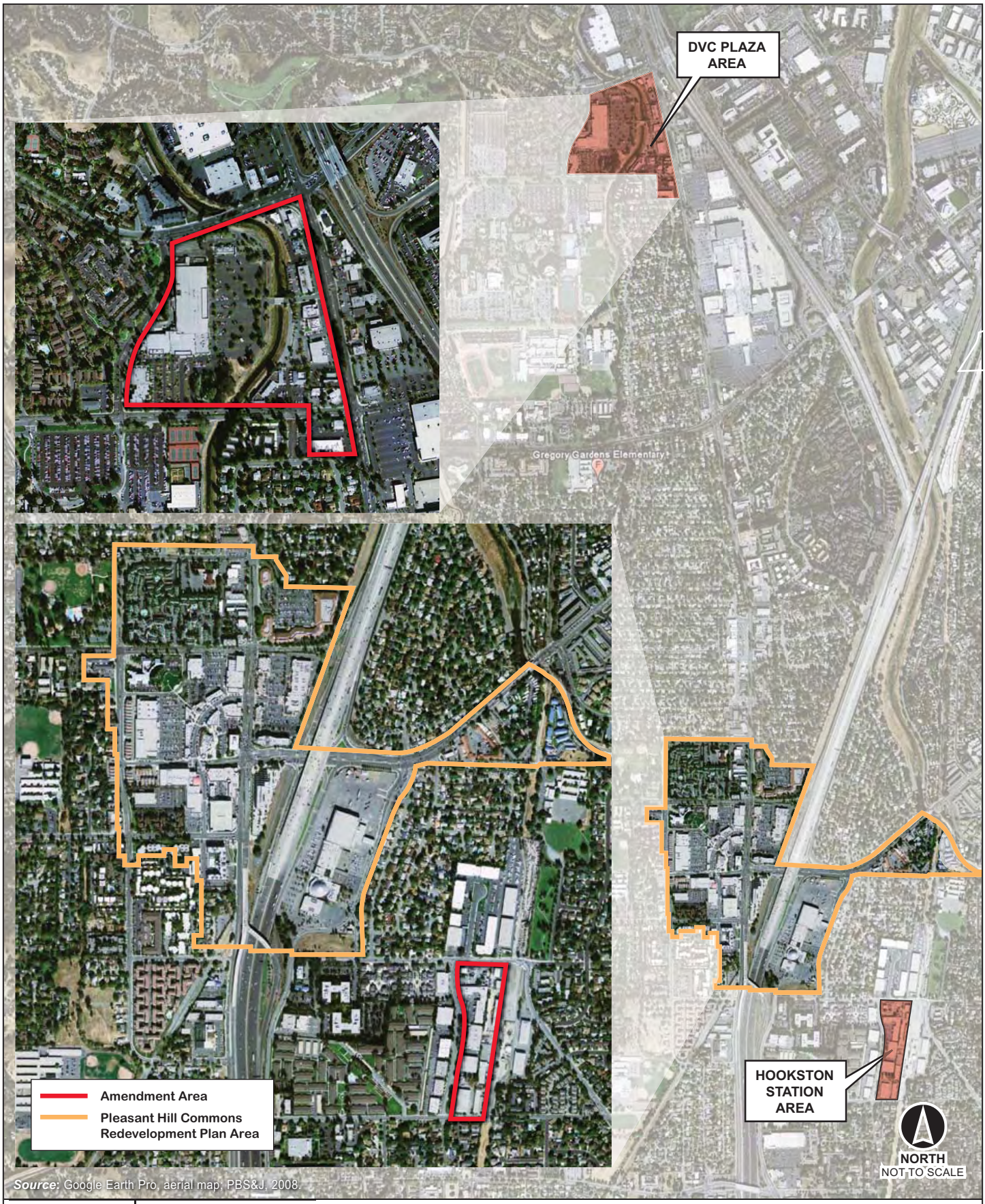
Existing General Plan Designation and Zoning

As illustrated in Figure 4.2-2 (City of Pleasant Hill General Plan Land Use Designations), the DVC Plaza Area is currently designated Mixed Use and Commercial and Retail, while the Hookston Station Area is presently designated Light Industrial. The Mixed Use designation combines residential with retail, commercial, office and/or public uses with flexible parking and setback requirements, while the Commercial and Retail designation allows shopping centers, banks, hotels, personal services (such as barber shops and dry cleaners), entertainment and cultural venues, restaurants, auto sales and service, and ancillary offices. The Light Industrial designation allows small assembly operations, warehouses, printing, and recycling transfer stations.

Portions of the DVC Plaza are also designated Park and Open Space. The Park designation labels existing and proposed parkland while the Open Space designation is essentially unimproved land devoted to preservation of natural resources and outdoor recreation. Within the DVC Plaza Area, Chilpancingo Park is designated as Park while the flood control channel is designated as Open Space.

As illustrated on Figure 4.2-3 (City of Pleasant Hill Zoning Ordinance Land Use Designations), the DVC Plaza Area is currently zoned retail business. This zoning designation allows shopping centers containing a wide variety of commercial establishments such as retail stores and business selling home furnishings, apparel, durable goods and specialty items, restaurants, commercial recreation, service stations and businesses, and personal and financial service. The Retail Business zoning designation also allows multi-family and single-family development through the approval of a use permit. The maximum allowable amount of residential development allowed is determined by the City on a case by case basis. With a FAR of 0.4 allowed by code, the DVC Plaza Area has a commercial development potential of 449,766 sf under the Retail Business zoning designation.

As illustrated on Figure 4.2-3, the Hookston Station Area is presently zoned Limited Industrial. This zoning designation allows minor utilities, automobile maintenance, rentals, sales, services, washing, building materials and services, commercial filming, commercial parking facilities, communication facilities, laboratories, maintenance and repair services, research and development services, vehicle storage, limited warehousing and storage, wholesaling, and distribution and storage. The only residential use allowed under this designation is emergency and transitional housing, which also requires the approval of a use permit. Again, the maximum allowable amount of residential development allowed is



Source: Google Earth Pro, aerial map; PBS&J, 2008.

FIGURE **4.2-1**

Aerial Overview

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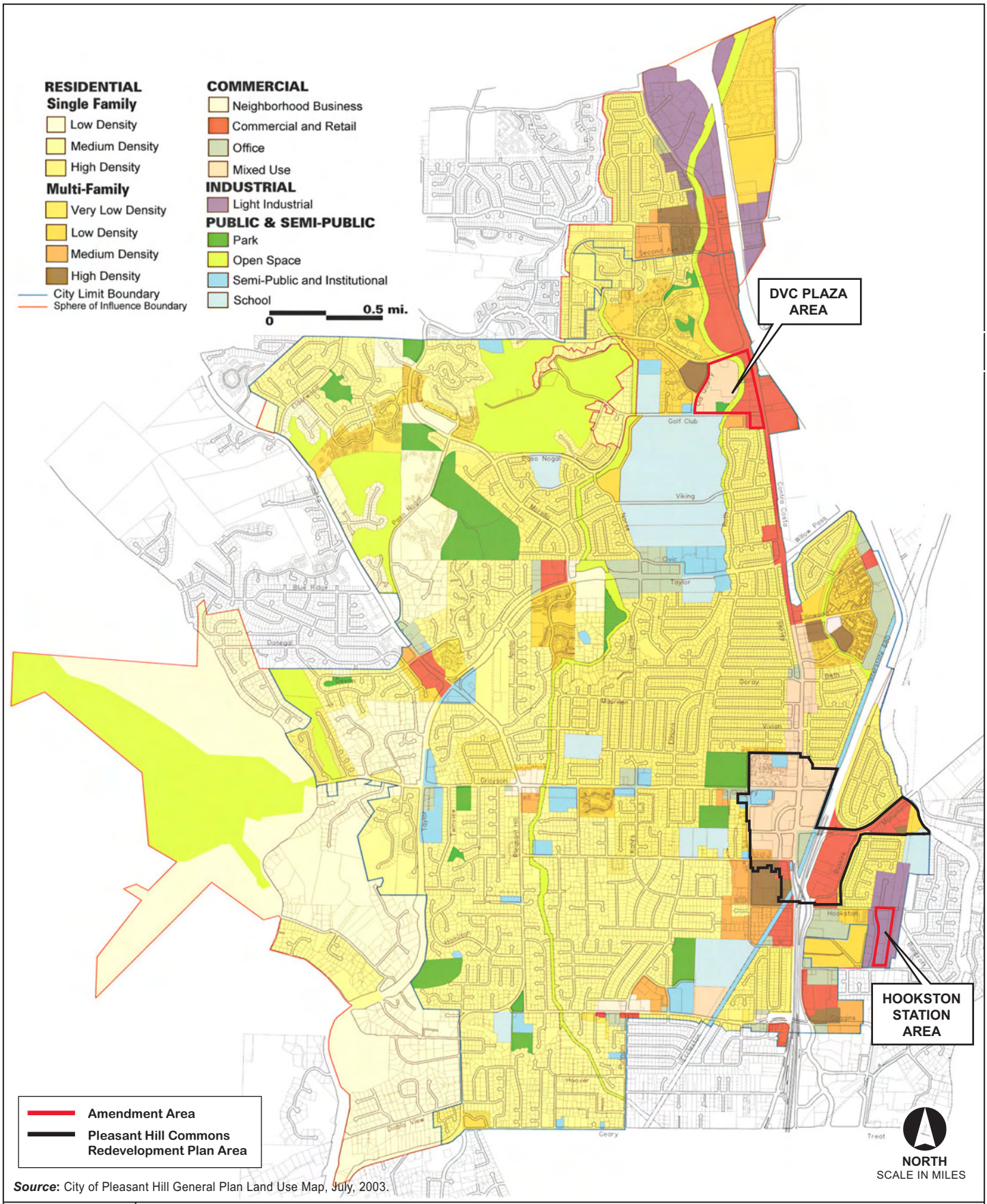

Source: City of Pleasant Hill General Plan Land Use Map, July, 2003.

FIGURE **4.2-2**

City of Pleasant Hill Land Use Designations

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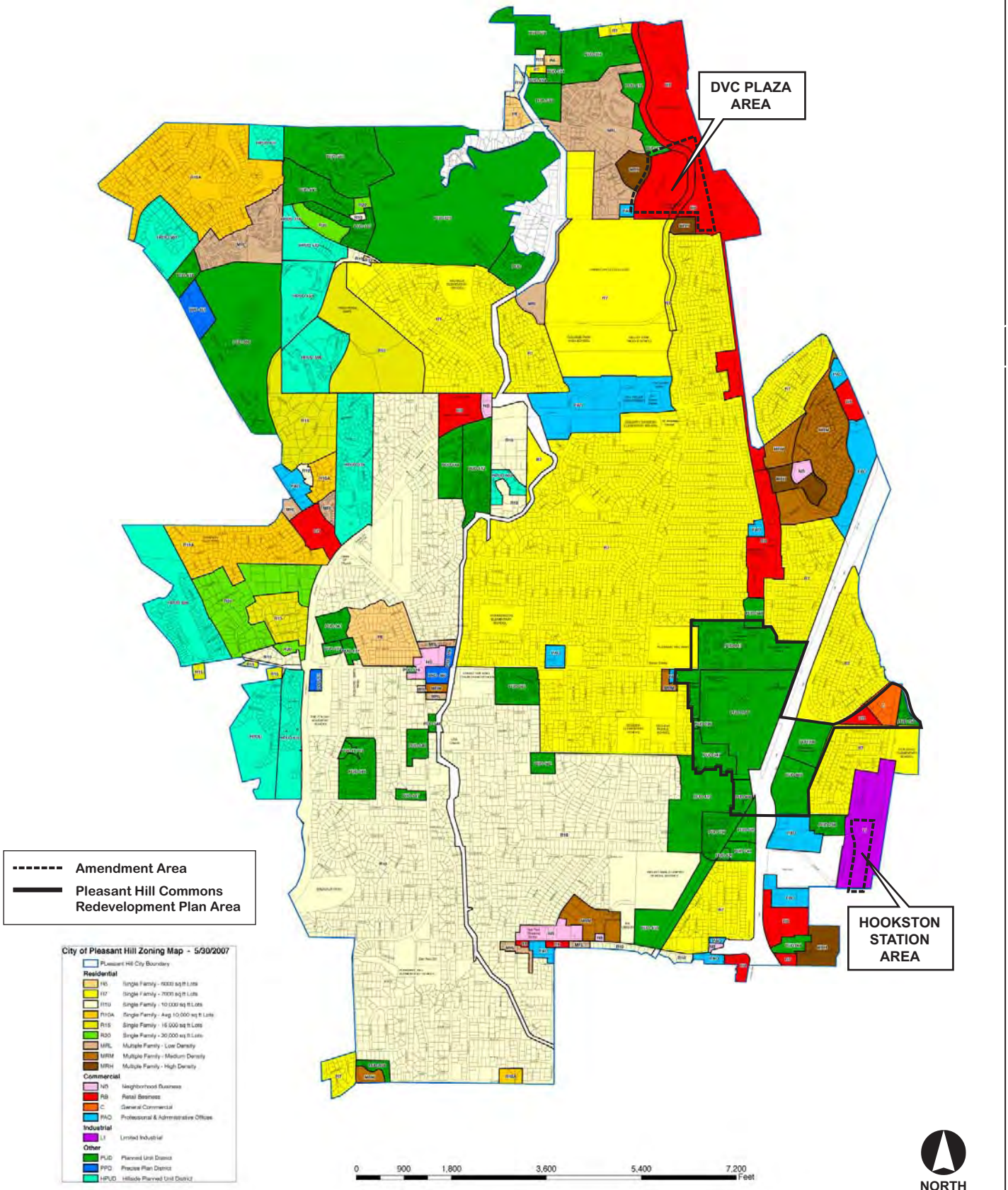

Source: City of Pleasant Hill Zoning Map, July, 2003.

FIGURE **4.2-3**

City of Pleasant Hill Zoning Ordinance Land Use Designations

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determined by City on a case by case basis. With a FAR of 0.4 allowed by code, the Hookston Station Area has a commercial/limited development potential of 147,463 sf under the Light Industrial zoning designation.

4.2.2 Regulatory Framework

There are no specific federal or State regulations pertaining to land use. Therefore, the City's planning goals and policies applicable to the proposed project are discussed below.

Local

City of Pleasant Hill General Plan

The Pleasant Hill General Plan, adopted in 2003, provides the City with the overall framework for future development and protection of its natural resources. Applicable goals, and policies and programs from the Community Development Element of the Pleasant Hill General Plan that pertain to land use are listed below.

Goal 2 Maintain the historic balance among different types and intensities of residential development, commercial retail, office uses, and open space.

Policy 2A Encourage uses needed by the community at appropriate locations.

Goal 3 Generate thriving, attractive and cohesive development at vacant or underutilized sites.

Policy 3A Revitalize commercial areas to benefit those who live and work in Pleasant Hill.

Policy 3B Require new development to adhere to high standards of quality in design.

Pleasant Hill Zoning Ordinance

The Pleasant Hill Zoning Ordinance was adopted in October 1996 and last amended in 1998. The purpose of the City's Zoning Ordinance is to protect and promote the public health, safety, and general welfare of the residents and to implement the policies of the City of Pleasant Hill General Plan. Specifically, the zoning ordinance is intended to: provide a precise guide for the physical development of the City in order to preserve the character and quality of residential neighborhoods, foster convenient, harmonious, and workable relationships among land uses to achieve the arrangement of land uses described in the general plan; prevent excessive population densities and overcrowding of land or buildings; ensure the provision of adequate open space for light, air, and fire safety; and to ensure that service demand of new development will not exceed the capacities of existing streets, utilities, or public services.

Pleasant Hill Commons Redevelopment Plan

The Commons Plan was adopted on May 21, 1974, and subsequently amended several times to change land uses, add area, establish or extend financial limits and extend eminent domain authority. The primary objective of the Commons Plan is to renew and create economic stimulation within the

Commons Project Area. The goal is to create an environment that will establish the Downtown as the center of community activity, to create a functioning balance of commercial (retail and office) and public space, as well as encourage the development of residential uses which will re-establish the aesthetic, economic, and social viability of the project area. As discussed above, the proposed project would add the DVC Plaza and Hookston Station Areas to the Commons Plan.

Contra Costa County Airport Land Use Compatibility Plan

The basic function of this Contra Costa County Airport Land Use Compatibility Plan (ALUCP) is to promote compatibility between the airports in Contra Costa County and the land uses which surround them. The plan is primarily concerned with land uses near the two public-use airports in the county: Buchanan Field Airport, situated in an unincorporated area between the Cities of Martinez, Concord and Pleasant Hill, and Byron Airport, located in an unincorporated area in the southeast corner of the County. The DVC Plaza Area is located approximately 0.5 miles southwest of Buchanan Field while the Hookston Station Area is located about three miles south of Buchanan Field.

The plan includes airport related noise and land use compatibility criteria, restrictions on the heights of structures and/or objects near the airport. The plan sets forth policies, standards, and criteria to address each of these issues and assist affected local agencies in achieving local land use compatibility with existing and future airport development and operations. The Contra Costa County ALUCP was prepared by the Contra Costa County Airport Land Use Commission (ALUC).

4.2.3 Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on whether the proposed project would physically divide an established community or conflict with applicable land use plans, policies, and regulations or an adopted habitat conservation or natural community conservation plan.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2008 CEQA Guidelines, except where noted. In accordance with the requirements of CEQA and all applicable state and federal environmental laws, implementation of a specific plan, such as a redevelopment plan or amendment thereto, may have a significant adverse impact on land use if it would result in any of the following:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

It should be noted that potential impacts with respect to division of an established community and potential conflicts with applicable habitat conservation or natural community conservation plans were scoped out as part of the IS/NOP and are not included within this chapter. For a discussion of these impacts, please refer to Appendix A (IS/NOP).

Threshold	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact 4.2-1 **The proposed amendments to the Commons Plan would not conflict with applicable land use plans adopted by the City of Pleasant Hill. Therefore, this impact would be considered *less than significant*.**

As required by Section 15125(d) of the CEQA Guidelines, the EIR shall discuss any inconsistencies between the proposed amendments to the Commons Plan and applicable local plan policies that pertain to land use. Local plans relevant to the proposed amendments, and for which a consistency analysis is also provided, includes the General Plan, Zoning Ordinance and the Commons Plan. An analysis of the proposed project's consistency with the Bay Area Air Quality Management District's Clean Air Plan is provided in Section 4.1 (Air Quality). Consistency of the proposed amendments with applicable local plans is provided in the following sections below.

Consistency with the City of Pleasant Hill General Plan

The proposed project is consistent with the City's General Plan. All redevelopment plans and amendments to redevelopment plans are required to be consistent with the community's General Plan.

Adoption and implementation of the amendments to the Commons Plan would likely result in the net increase of 147,463 sf of commercial development and 300 dwelling units within the DVC Plaza Area and 19,954 sf of commercial/limited industrial development within the Hookston Station Area compared to existing conditions. The aim of Goal 2 to maintain the historic balance among different types and intensities of residential development, commercial retail, office uses, and open space in the City while Policy 2A implementing this goal encourages uses needed by the community at appropriate locations. According to the Community Plan Element, approximately 64 percent of the housing units in the City are categorized as single-family units and 36 percent are categorized as multi-family units.[52] In addition, the amount of commercial space in the City (including light industrial and semi-public/institutional uses) equals roughly 4.3 million sf. The addition of 300 multi-family dwelling units would increase the number of multi-family dwelling units in the City by less than 6 percent and would result in an overall balance of single-family units to multi-family units in the City to 63 percent to 37 percent, respectively. Further, the combined increase in commercial development between the two areas would increase the amount of commercial space in the City by less than four percent.

The intensification of land uses within the DVC Plaza and Hookston Station areas that would result from amending the Commons Plan is appropriate at these locations as these areas have not reached there full development potential. However, the amount of non-residential development within each area would not exceed the amount permitted under existing zoning (See Consistency with the City of Pleasant Hill Zoning Ordinance below). In addition, the 300 residential units, which would consist of multi-family

[52] Based on 8,571 existing single-family units and 4,835 existing multi-family units listed in Table CD1, Development Potential.

high-density housing (30 to 40 units per acre), would be appropriate within the DVC Plaza Area as they would be compatible with adjacent multi-family high-density residential developments that presently exists to the west and south, and a multiple family low-density (12 to 19.9 units per acre) development that currently exists further to the west. Concerning the compatibility of the proposed residential uses with existing and planned commercial uses in the DVC Plaza Area, residents of the proposed residential units would have chosen to live and/or stay in an urban environment that includes a higher level of ambient lighting and noise that are exclusively residential. For the reasons listed above, the proposed amendments would be consistent with this goal and policy.

Goal 3 refers to increasing development on vacant or underutilized sites while Policies 3A and 3B implementing this goal seek to revitalize commercial areas to benefit those who live and work in Pleasant Hill and requires new development to adhere to high standards of quality in design. As discussed above, the DVC Plaza and Hookston Station areas are presently underutilized and amending the Commons Plan would result in an intensification of land uses on these sites. The intensification of land uses on each site would result in the generation of additional tax revenue, which could then be used to fund programs in the City benefiting residents and workers alike. In addition, the 300 residential units associated with the amendment would provide additional housing options within the City. While specific details of the proposed development are unknown at this time, development associated with the amendments would be consistent with the City's recently adopted design guidelines for residential and non-residential development projects, thus resulting in high standards of quality in design. For these reasons, residential development associated with the amendments to the Commons Plan would not conflict with this set of goals, policies and programs.

Consistency with the City of Pleasant Hill Zoning Ordinance

The proposed amendments would result in the intensification of the DVC and Hookston Station Areas as the inclusion of the areas within the Commons Project Area would provide the redevelopment agency with powers, duties and obligations to redevelop, rehabilitate and revitalize the areas. As a result, adoption of the amendments would result in the demolition of existing structures and the construction of newer buildings. However, development within each area would not exceed the maximum amount of development allowed under Section 18.05.020 of the Pleasant Hill Municipal Code. Therefore, adoption of the amendments would not conflict with the Pleasant Hill Zoning Ordinance.

Consistency with the Pleasant Hill Commons Redevelopment Plan

The central objective of the Commons Redevelopment Plan "is to renew and create economic stimulation within this area to create an environment which will establish this area as the Center of Community activity, to create a functioning balance of commercial (retail and office) and public space as well as residential uses which will re-establish the aesthetic, economic and social viability of the Project Area."

Land within the DVC Plaza and the Hookston Station Areas is presently under-utilized. As mentioned above, under existing zoning, the DVC Plaza Area has the potential to add an additional 147,463 sf of commercial development over what is currently present on the site while the Hookston Station Area has

the potential to add an additional 19,954 sf of commercial/limited industrial development over what is currently on the site. Therefore, the addition of these areas to the Commons Project Area would aid in achieving this objective, as redevelopment opportunities are available in each area because some parcels are under-utilized under current conditions. For example, by requiring developers, property owners and businesses to enter into disposition and development or owner participation agreements and assembling parcels for proper development, the Agency can provide assistance and impose conditions and covenants to ensure more comprehensive planning of each site, which would result in a better balance between commercial, office, and residential uses, and, if the proposed project is approved, industrial uses. This balance of uses would be much more difficult to achieve if a private developers and/or entities developed the properties individually. In addition, the addition of the DVC Plaza and the Hookston Station Areas to the Commons Project Area would allow the redevelopment agency to require aesthetic and infrastructure improvements through the uses of development and disposition agreements with private developers and/or entities. For these reasons, the adoption of the amendments would not conflict with the Commons Plan.

Consistency with the Contra Costa County Airport Land Use Compatibility Plan

The DVC Plaza Area is located within the Buchanan Field Airport influence area, which is the area commonly over flown by aircraft as they approach and depart the airport or fly within the traffic pattern. The Hookston Station area is not in the airport's influence area. Compatibility of a proposed project with the ALUCP is based on noise, land use, and height criteria. According to noise standards listed in the ALUCP, exterior noise levels between 60-65 CNEL (dB) are marginally acceptable while noise levels above 65 CNEL (dB) are clearly unacceptable for multi-family residential uses.[53] The maximum, aircraft-related, interior noise level which is considered acceptable for multi-family land uses within an airport influence area is 45 dB CNEL (dB).[54] As explained in Section 4.3, Noise, portions of the northeastern corner of the DVC Plaza Area would be located within the 65 to 70 dB noise contour associated with Buchanan Field Airport operations while the rest of the area would be located within the 60 to 65 dB contour. These noise levels not only exceed noise levels that are marginally acceptable and clearly unacceptable according to the ALUCP but also exceed noise standards contained in the City's Municipal Code (50 dB L_{dn}). However, mitigation is available to adequately reduce excessive noise levels to within the City's standard, which is well under the exterior standards listed in the ALUCP. In addition, proposed mitigation would also result in interior noise levels below 45 dB.

Concerning land use compatibility, according to the ALUCP, a small portion of the northeast corner of the DVC Plaza Area is located within Safety Zone 3 for the Buchanan Field Airport while the remainder of the area is located in Safety Zone 4.[55] Standards identified under Safety Zone 3 limit land uses to a maximum of 125 people per acre, state that buildings shall have no more than three habitable floors above ground, and specifically prohibit residences among other land uses. Standards identified under Safety Zone 4 do not limit land use intensity other than that buildings shall have no more than four

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53 Contra Costa County, *Contra Costa County Airport Land Use Compatibility Plan*, Table 3A, Noise Compatibility Criteria, Buchanan Field Airport Environs, December 2000, p. 3-7.

54 Contra Costa County, *Contra Costa County Airport Land Use Compatibility Plan*, December 2000, pp. 2-20 and 21.

55 Contra Costa County, *Contra Costa County Airport Land Use Compatibility Plan*, Figure 3C, Safety Zones, Buchanan Field Airport, December 2000, p. 3-9.

habitable floors above ground. Regarding heights, portions of the DVC Plaza Area are located within Height Exception Overlay Zone 1.[56] The overlay limits the height of structures to 279 feet above mean sea level (approximately 250 feet above ground level). Development of structures within the DVC Plaza Area are not anticipated to exceed the land use compatibility and height restrictions established by the ALUCP for the Buchanan Field Airport. For these reasons, adoption of the amendments would not conflict with the ALUCP.

Overall Consistency

As discussed above, the proposed amendments to the Commons Plan do not conflict with the goals, policies and implementation programs of the General Plan. In addition, the proposed amendments do not conflict with provisions of the Zoning Ordinance or the general objective of the Commons Plan. Finally, the proposed amendments to the Commons Plan would adhere to standards contained in the County's ALUCP. Therefore, the proposed amendments would not conflict with applicable documents adopted for the purpose of avoiding or mitigating an environmental effect and impacts would be ***less than significant***.

4.2.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts. This cumulative impact analysis considers development of the proposed amendments to the Commons Plan, in conjunction with other development in the City of Pleasant Hill, unless otherwise specified. This analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Pleasant Hill General Plan.

Cumulative development could have impacts to an existing community where development results in physical division of an area. However, future development in the City is not likely to alter the basic pattern of development prescribed in the General Plan, and will consist primarily of the recycling of land and intensification of existing development. For this reason, the cumulative impact associated with the physical division of an established community would be less than significant. The increase in development that is expected to occur under the proposed amendments would be compatible with adjacent uses as development would not exceed what is presently allowed under the City's zoning ordinance. Therefore, the amendments to the Commons Plan would not have a cumulatively considerable contribution to impacts, and cumulative impacts would be ***less than significant***.

Cumulative development within the City could have a potentially significant impact on the environment by conflicting with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. Future development in the City would be reviewed for consistency with applicable plans and policies, in

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[56] Contra Costa County, *Contra Costa County Airport Land Use Compatibility Plan*, Figure 3D, Airspace Protection Surfaces, Buchanan Field Airport, December 2000, p. 3-10.

accordance with the requirements of CEQA, the State Zoning and Planning Law, the Pleasant Hill Municipal Code, and the State Subdivision Map Act, all of which require findings of plan and policy consistency prior to approval of entitlements for development. It should be noted that future projects could also include General Plan amendments and/or zone changes. For this reason, the cumulative impact associated with conflict of future development with adopted plans and policies would be less than significant. As discussed above, implementation of the proposed amendments would not conflict with the General Plan, Zoning Ordinance and the Commons Plan. Therefore, the amendments to the Commons Plan would not have a cumulatively considerable contribution to impacts, and cumulative impacts would be ***less than significant***.

4.2.5 References

Contra Costa, County of. 2000. Contra Costa County Airport Land Use Compatibility Plan. Chapter 3

Pleasant Hill, City of. 2008. <www.ci.pleasant-hill.ca.us/>

_____. 2003. Pleasant Hill General Plan Community Development Element.

_____. 2003. Pleasant Hill General Plan Economic Strategy Element.

_____. 2008. Pleasant Hill Municipal Code. Title 18 Planning and Land Use.

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4.3 NOISE

This EIR section describes the existing noise environment in the area of the proposed project site and the potential of the proposed project to significantly increase noise and groundborne vibration levels due to project construction and operation. The analysis included in this section was developed based on a field investigation to measure existing noise levels, a review of noise standards in the City of Pleasant Hill General Plan, and noise assessment methodologies, including the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction model and others contained in the Federal Transit Administration's Transit Noise and Impact Assessment document. Traffic inputs for the noise prediction model were provided by the traffic study completed for the project (see Appendix E). Potential direct and indirect impacts resulting from construction and operation of the proposed projects are identified, and potential mitigation measures that could avoid or reduce these impacts are recommended, where feasible.

As discussed in the Initial Study (see Appendix A), because the project is not located within the vicinity of a private airstrip, it would not expose people in the project area to excessive noise levels due to operation of a private airstrip. Therefore, this issue is not discussed further in this section. However, it should be noted that the proposed project is located near a public airport and the potential noise impacts associated with the public airport are discussed herein.

Comments raised in response to the NOP that related to noise (see Appendix B) included a request from the California Department of Transportation (Caltrans), Division of Aeronautics for the noise analysis to use the Caltrans Airport Land Use Planning Handbook (Handbook) in preparation of environmental documents. Because the DVC Plaza Area is located within 0.5 miles of the Buchanan Field Airport, this analysis contains a discussion of guidelines contained in the Caltrans Handbook.

4.3.1 Environmental Setting

Fundamentals of Sound, Noise, and Vibration

Sound

Sound is created when vibrating objects produce pressure variations that move rapidly outward into the surrounding air. The main characteristics of these air pressure waves are amplitude, which we experience as a sound's loudness, and frequency, which we experience as a sound's pitch. The standard unit of sound amplitude is the decibel (dB); it is a measure of the physical magnitude of the pressure variations relative to the human threshold of perception. The human ear's sensitivity to sound amplitude is frequency-dependent; it is more sensitive to sound with a frequency at or near 1,000 cycles per second than to sound with much lower or higher frequencies.

Most "real world" sounds (e.g., a dog barking, a car passing, etc.) are complex mixtures of many different frequency components. When the average amplitude of such sounds is measured with a sound level meter, it is common for the instrument to apply different adjustment factors to each of the measured

sound's frequency components. These factors account for the differences in perceived loudness of each of the sound's frequency components relative to those that the human ear is most sensitive to (i.e., those at or near 1,000 cycles per second). This practice is called "A-weighting." The unit of A-weighted sound amplitude is also the decibel. However, when reporting measurements to which A-weighting has been applied, an "A" is appended to dB (i.e., dBA) to make this clear.

Noise

Noise is the term generally given to the "unwanted" aspects of intrusive sound. Many factors influence how a sound is perceived and whether or not it is considered annoying to a listener. These include the physical characteristics of a sound (e.g., amplitude, frequency, duration, etc.), but also non-acoustic factors (e.g., the acuity of a listener's hearing ability, the activity of the listener during exposure, etc.) that can influence the judgment of listeners regarding the degree of "unwantedness" of a sound.

All quantitative descriptors used to measure environmental noise exposure recognize the strong correlation between the high acoustical energy content of a sound (i.e., its loudness and duration) and the disruptive effect it is likely to have as noise. Because environmental noise fluctuates over time, most such descriptors average the sound level over the time of exposure, and some add "penalties" during the times of day when intrusive sounds would be more disruptive to listeners. The most commonly used descriptors are:

Equivalent Energy Noise Level (L_{eq}) is the constant noise level that would deliver the same acoustic energy to the ear of a listener as the actual time-varying noise over the same exposure time. No "penalties" are added to any noise levels during the exposure time; L_{eq} would be the same regardless of the time of day during which the noise occurs.

Day-Night Average Noise Level (L_{dn}) is a 24-hour average Leq with a 10 dBA "penalty" added to noise levels during the hours of 10:00 p.m. to 7:00 a.m. to account for increased sensitivity that people tend to have to nighttime noise. Because of this penalty, the L_{dn} would always be higher than its corresponding 24-hour L_{eq} (e.g., a constant 60 dBA noise over 24 hours would have a 60 dBA L_{eq}, but a 66.4 dBA L_{dn}).

Community Noise Equivalent Level (CNEL) is an L_{dn} with an additional 5 dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m.

Minimum Noise Level (L_{min}) the minimum instantaneous noise level experienced during a given period of time.

Maximum Noise Level (L_{max}) the maximum instantaneous noise level experienced during a given period of time.

Community noise exposures are typically represented by 24-hour descriptors, such as a 24 hour L_{eq} or L_{dn}. One-hour and shorter-period descriptors are useful for characterizing noise caused by short-term activities, such as the operation of construction equipment.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise

levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). According to the City's Noise Control Ordinance, the exterior noise level standard is 55 dBA from 7:00 a.m. to 10:00 p.m., and 50 dBA from 10:00 p.m. to 7:00 a.m. The interior noise level standard is 55 dBA from 7:00 a.m. to 10:00 p.m., and 45 dBA from 10:00 p.m. to 7:00 a.m. Standards for impact noise, simple tone noise, speech, music, and any other combination are 5 dBA lower than the above standards, and noise levels exceeding these standards are limited to relatively shorter periods of time. Table 4.3-1 (Representative Environmental Noise Levels) lists representative environmental noise levels.

Table 4.3-1 Representative Environmental Noise Levels

Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
Power Saw	—110—	Rock Band
Jet Fly-over at 100 feet		Crying Baby
Subway	—100—	
Gas Lawnmower at 3 feet		
Tractor	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	Sewing Machine
Air Conditioner		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
		Refrigerator
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

SOURCE: California Department of Transportation, Noise, Air Quality, and Hazardous Waste Management Office, *Technical Noise Supplement*, October 1998, p. 18.

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people. A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness. In general, the higher the L_{dn} in a residential area, the greater the proportion of residents who report themselves "highly annoyed" with their noise exposure; and for a set increase in L_{dn}, the proportion of resident's in the "highly annoyed" category increases faster at a higher L_{dn} than at a lower L_{dn}.[57]

Noise levels from a particular source decline as distance to a receptor increases. The weather and even the makeup of intervening terrain can also help intensify or reduce noise levels at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures, such as a row of buildings, a solid wall, or a berm located between the receptor and the noise source. California homes built prior to 1970 generally provide an exterior-to-interior noise level reduction up to about 20 dB with closed windows. Homes built within the last 30 years generally provide an exterior-to-interior reduction up to about 30 dB with closed windows.

Groundborne Vibration

Vibrating objects in contact with the ground radiate energy. If a vibrating object is massive enough and/or close enough to an observer, its vibrations are perceptible. Vibration magnitude is measured in vibration decibels (VdB) relative to a reference level of 1 micro-inch per second, the human threshold of perception. The background vibration level in residential areas is usually 50 VdB or lower, well below the threshold of perception for humans, which is around 65 VdB. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where damage can occur in fragile buildings. Common vibration sources and the human and structural response to ground-borne vibration are illustrated in Table 4.3-2 (Typical Sources and Responses to Groundborne Vibration).

Accurate estimates of ground-borne vibration are complicated due to the many factors that influence vibration levels at potential receivers. Main factors that have significant effects on levels of ground-borne vibration are:

Geology: Soil conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Experience has shown that vibration propagation is more efficient in clay soils as well as areas

[57] Transit Noise and Vibration Impact Exposure, Federal Transit Administration, May 2006; Chapter 3 and Appendix B.

Table 4.3-2 Typical Sources and Responses to Groundborne Vibration

Human/Structural Response	*Velocity Level (dBA)*	*Typical Sources (50 feet from source)*
Threshold, minor cosmetic damage to fragile buildings	—100—	Blasting from construction projects
	95	Bulldozers and other heavy tracked construction equipment
Difficulty with tasks such as reading a VDT screen	—90—	
	85	High speed rail, upper range
Residential annoyance, infrequent events (e.g. commuter rail)	—80—	Rapid transit, upper range
		High speed rail, typical
Residential annoyance, frequent events (e.g. rapid transit)		Bus or truck over bump
	—70—	
Limit for vibration sensitive equipment/Approximate threshold for human perception of vibration		
		Bus or truck, typical
	—60—	
	55	Typical background vibration
	—50—	

SOURCE: California Department of Transportation, Noise, Air Quality, and Hazardous Waste Management Office, *Technical Noise Supplement*, October 1998, p. 18.

with shallow bedrock. The latter condition seems to channel or concentrate the vibration energy close to the surface, resulting in ground-borne vibration problems at large distances from the source. Factors such as layering of the soil and depth to water table can also have significant effects on the propagation of ground-borne vibration.

Receiving Building: Ground-borne vibration problems occur almost exclusively inside buildings. Therefore, the characteristics of the receiving building are a key component in the evaluation of ground-borne vibration. Vibration may be perceptible to people who are outdoors, but it is very rare for outdoor vibration to cause complaints. The vibration levels inside a building depend on the vibration energy that reaches the building foundation, the coupling of the building foundation to the soil, and the propagation of the vibration through the building structure. The general guideline is that the more massive a building is, the lower its response to incident vibration energy in the ground.[58]

Existing Conditions

Existing Noise-Sensitive Receptors

Some land uses are more sensitive to noise than others. These sensitive uses are commonly referred to as "sensitive receptors," and normally include residences, hospitals, churches, libraries, schools, and

[58] U.S. Department of Transportation Federal Railroad Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, October 2005, pp. 6-7.

retirement homes. Noise sensitive land uses are typically given special attention because activities at these uses require relatively quiet environments.

The Hookston Station Area is surrounded by industrial and commercial warehouse uses to the north, west, and east. Because operations within these land uses do not require quiet environments, they are not considered sensitive receptors. However, there are existing sensitive receptors immediately south of the site which include single-family and multi-family residential uses. The multi-family residential uses are located approximately 75 feet from the project site. The single-family residential uses are located approximately 125 feet from the project site. There are also residential land uses located just beyond the industrial and commercial land uses to the north, west, and east but are not immediately adjacent to the site.

The DVC Plaza Area is surrounded by sensitive receptors to the north, south, and west, approximately 75 feet from the project site. All of the adjacent receptors are multi-family residential uses. The remaining land uses surrounding the site are office uses to the west, commercial uses to the north and east, and education and commercial uses to the south.

Existing Ambient Daytime Noise Levels

The instrument used to measure noise is a sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA.

Existing ambient daytime noise levels were measured at eight selected locations over 15 minute periods in and around the project site on April 10, 2008. These locations are identified in Figure 4.3-1 (Noise Monitoring Location at DVC Plaza Area) and Figure 4.3-2 (Noise Monitoring Locations at Hookston Station Area). The noise levels were measured using a Larson-Davis Model 720 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The average noise levels and sources of noise measured at each location are identified in Table 4.3-3 (Measured Noise Levels Around the Project Site). At each monitoring location, the primary source of noise was the nearest roadway.

Additional noise generating sources near the project site include Interstate 680 (I-680) which is located less than 200 feet northeast of the DVC Plaza Area. Approximately 509,000 vehicles travel along I-680 near the DVC Plaza Area project site each day.[59] Because noise operates by line of sight, noise levels due to traffic on I-680 are high because the southbound lane of traffic is visible from the DVC Plaza Area project site. Figure 4.3-3 (Buchanan Field Airport Noise Contours) shows the noise contours due to traffic on I-680. In addition, the Buchanan Field Airport is located approximately 2,500 feet northeast of the DVC Plaza Area. Figure 4.3-4 (Buchanan Field Airport Noise Contours) shows the noise contours from airport operations at Buchanan Field Airport.

[59] California Department of Transportation, Traffic Data Branch, Traffic and Vehicle Data Systems Unit, 2006, <www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>, accessed May 13, 2008.

Source: PBS&J, 2008.

FIGURE **4.3-1**

Noise Monitoring Locations at DVC Plaza Area

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Pleasant Hill Commons

03030 | JCS | 08

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Source: PBS&J, 2008.

FIGURE **4.3-2**

Noise Monitoring Locations at Hookston Station Area

1000000662

Pleasant Hill Commons

03030 | JCS | 08

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Source: City of Pleasant Hill General Plan, 2003.

FIGURE **4.3-3**

City of Pleasant Hill Roadway Noise Contours

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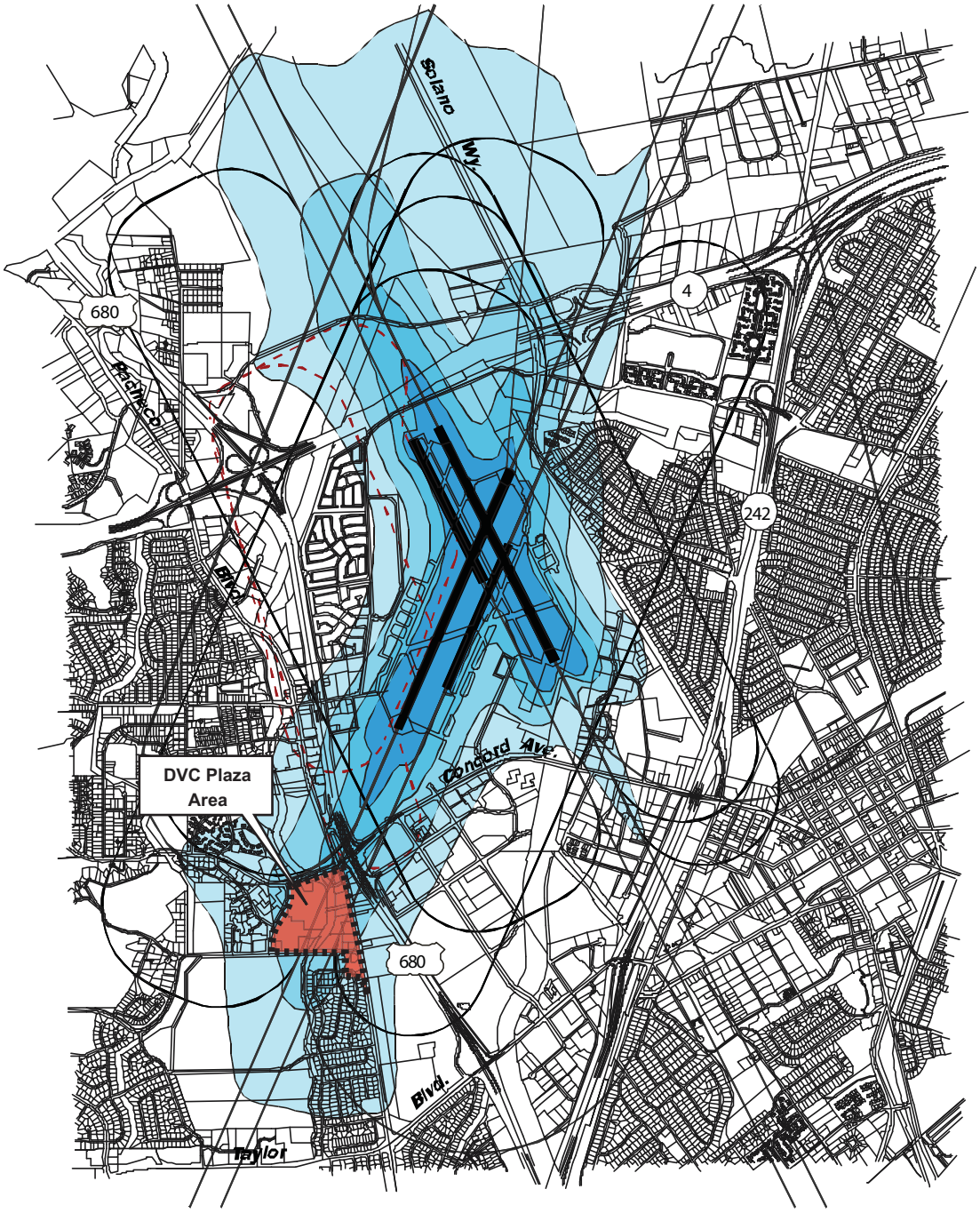

TypicalHelicopter Touch&GoFlightTracks
TypicalAirplaneFlightTracks
55-60dBCNEL
60-65dBCNEL
65-70dBCNEL
70+dBCNEL

0 1,000' 2,000 3,000
NORTH
SCALE IN FEET

Source: Contra Costa County Airport Land Use Compatibility Plan, December 2000.

FIGURE **4.3-4**

Buchanan Field Airport Noise Contours

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Table 4.3-3 Measured Noise Levels Around the Project Site

Location		Primary Noise Sources	Noise Level Statistics L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
DVC Plaza Area					
1	Golf Club Road, residential receptor	Road Traffic	72.5	49.7	105.0
2	Old Quarry Road, residential receptor	Road Traffic	68.6	47.5	86.9
3	Contra Costa Boulevard, commercial receptor	Freeway/Road Traffic	70.0	59.6	87.9
4	Existing K-Mart Parking Lot, on project site	Road Traffic	68.2	50.2	90.7
Hookston Station Area					
5	Mayhew Way, residential receptor	Road Traffic	66.7	48.9	88.3
6	Vincent Road, on project site	Road Traffic	55.8	46.2	71.7
7	Vincent Road, commercial receptor	Road Traffic	59.7	50.0	82.9
8	Hookston Road, commercial receptor	Road Traffic	67.9	50.5	84.4

SOURCE: PBS&J, April 10, 2008.

Additional noise generating sources near the project site include Interstate 680 (I-680) which is located less than 200 feet northeast of the DVC Plaza Area. Approximately 509,000 vehicles travel along I-680 near the DVC Plaza Area project site each day.[60] Because noise operates by line of sight, noise levels due to traffic on I-680 are high because the southbound lane of traffic is visible from the DVC Plaza Area project site. Figure 4.3-3 (Buchanan Field Airport Noise Contours) shows the noise contours due to traffic on I-680. In addition, the Buchanan Field Airport is located approximately 2,500 feet northeast of the DVC Plaza Area. Figure 4.3-4 (Buchanan Field Airport Noise Contours) shows the noise contours from airport operations at Buchanan Field Airport.

Existing Groundborne Vibration

Usually, the most likely existing source of ground-borne vibration at a project site is roadway truck and bus traffic. Trucks and buses typically generate ground-borne vibration velocity levels of around 63 VdB, but could reach 72 VdB where trucks and buses pass over bumps in the road (see Table 4.3-2). Loaded trucks can create even higher levels of VdB. Both the Hookston Station Area and DVC Plaza Area are currently developed and experience vibration levels due to bus and truck traffic. Hwy 680, which is less than 200 feet from the DVC Plaza Area, also contributes a small amount of vibration due to heavy truck traffic.

Existing Roadway Noise Levels Off-Site

Existing roadway noise levels were calculated for the roadway segments in the project site vicinity that have noise-sensitive uses facing the roadways. This task was accomplished using the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5 (TNM) and traffic volumes from the project

[60] California Department of Transportation, Traffic Data Branch, Traffic and Vehicle Data Systems Unit, 2006, <www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>, accessed May 13, 2008.

traffic analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average daily noise levels along these roadway segments are presented in Table 4.3-4 (Existing Roadway Noise Levels). As indicated, average peak hour noise levels along roadways in the vicinity of the project area range from a high of 67.8 dBA L_{eq} to a low of 50.5 dBA L_{eq}.

Table 4.3-4 Existing Roadway Noise Levels

Roadway Segment	*L_{eq} at 50 Feet [a] (dBA)*
DVC Plaza Area	
Golf Club Road, between Old Quarry and Contra Costa	60.0
Old Quarry Road, between Chilpancingo and Golf Club	59.2
Chilpancingo Parkway, between Old Quarry and Contra Costa	61.6
Contra Costa Boulevard, between Chilpancingo and Golf Club	67.8
Hookston Station Area	
Mayhew Way, east of Vincent	58.8
Vincent Road, between Hookston and Mayhew	50.5
Hookston Road, east of Vincent	60.9

SOURCE: PBS&J, 2008 (calculation data and results are provided in Appendix D).

[a] Distances are in feet from roadway centerline. The identified noise level at 50 feet from the roadway centerline is for reference purposes only. It does not reflect an actual building location or potential impact location.

4.3.2 Regulatory Framework

Federal

The *Federal Noise Control Act* (1972) addressed the issue of noise as a threat to human health and welfare, particularly in urban areas. In response to the *Noise Control Act*, the Environmental Protection Agency (EPA) published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.[61] Table 4.3-5 (Summary of Noise Levels Identified as Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety) summarizes EPA recommendations for residential and other noise-sensitive land uses (i.e., that yearly average Leq not exceed 70 dBA or less to prevent measurable hearing loss over a lifetime; and that L_{dn} not exceed 55 dBA outdoors and 45 dBA indoors to prevent activity interference and annoyance). The EPA intent was that these findings not necessarily be considered as standards, criteria, or regulatory goals, but as advisory exposure levels below which there is no reason to suspect that the general population would be at risk from any of the identified health or welfare effects of noise.

[61] U.S. Environmental Protection Agency, Office of Noise Abatement and Control, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974.

Table 4.3-5 Summary of Noise Levels Identified as Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety

Effect	*Level*	*Area*
Hearing	L_{eq} (24 hr.) < 70 dBA	All areas
Outdoor activity interference and annoyance	L_{dn} < 55 dBA	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
Outdoor activity interference and annoyance	L_{eq} (24 hr) < 55 dBA	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	L_{dn} < 45 dBA	Indoor residential areas
Indoor activity interference and annoyance	L_{eq} (24 hr) < 45 dBA	Other indoor areas with human activities such as schools, etc.

SOURCE: U.S. Environmental Protection Agency, Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.

Noise exposure at the identified level would have to continue over a period of forty years before any hearing loss would result.

The EPA Levels report also identified 5 dBA as an adequate margin of safety before an increase in noise level would produce a significant increase in the severity of community reaction (i.e., increased complaint frequency, annoyance percentages, etc.) provided that the existing baseline noise exposure did not exceed 55 dBA L_{dn}.

The Federal Transit Administration (FTA) has developed an extensive methodology and significance criteria to evaluate noise impacts from surface transportation modes (i.e., private motor vehicles, trucks, buses, and rail), as presented in Transit Noise Impact and Vibration Assessment (May 2006). The scientific rationale for FTA's criteria is clearly explained and is widely accepted by acoustic scientists. The FTA incremental noise impact criteria are presented in Table 4.3-6 (Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses [dBA]). These criteria are based on the EPA findings (as presented in Levels and summarized in Table 4.3-5) and subsequent studies of annoyance in communities affected by transportation noise. Starting from the EPA's definition of minimal noise impact as a 5 dBA change from a "safe" ambient level of 50 dBA (L_{dn} or peak hour L_{eq}, depending on the FTA's Land Use Category), the FTA extended the incremental impact criteria to higher baseline ambient levels by requiring that increased adverse community reaction be kept below a defined minimal level (i.e., a 2 percent increase the number of residents reporting a "high" level of annoyance, as measured by a survey). As baseline ambient levels increase, it takes a smaller and smaller increment to produce the same increase in annoyance (e. g., in residential areas with a baseline ambient noise level of 50 dBA L_{dn}, a 5 dBA increase in noise levels would be expected to increase community annoyance by 2 percent, but at a baseline ambient noise level of 70 dBA L_{dn}, a 1 dBA increase in noise levels would be expected to have the same effect on community annoyance levels).

The Federal Transit Administration (FTA) has also developed criteria for judging the significance of ground-borne vibration, as shown in Table 4.3-7 (Ground-Borne Vibration (GBV) Impact Criteria for General Assessment).

Table 4.3-6 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and buildings where people normally sleep[a]		*Institutional land uses with primarily daytime and evening uses*[b]	
Existing L_{dn}	*Allowable Noise Increment*	*Existing Peak Hour L_{eq}*	*Allowable Noise Increment*
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

SOURCE: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006.

a This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

Table 4.3-7 Ground-Borne Vibration (GBV) Impact Criteria for General Assessment

Land Use Category	*GVB Impact Levels (VdB re 1 micro-inch/second)*		
	Frequent Events[a]	*Occasional Events*[b]	*Infrequent Events*[c]
Category 1: Buildings where vibration would interfere with interior operations.	65[d]	65[d]	65[d]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

SOURCE: Federal Transit Administration, Transit Noise Impact and Vibration Assessment, May 2006.

a "Frequent Events" is defined as more than 70 vibration events of the same source per day.

b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

c "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

d This criterion limit is bases on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.

State

The California Department of Health Services (DHS) Office of Noise Control has previously studied the correlation of noise levels and their effects on various land uses (DHS no longer exists). The most current guidelines prepared by the State noise officer were issued in 1987. They are contained in the "General Plan Guidelines" issued by the Governor's Office of Planning and Research in 1998. Noise-compatible land use planning depends on the ability to locate noise-sensitive land uses in an acceptable environment. Exterior noise environments are "normally acceptable" for schools and residences if they are below 60 dBA L_{dn} (or CNEL) and "conditionally acceptable" below 70 dBA L_{dn} (or CNEL). A "conditionally acceptable" designation implies that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements and after necessary noise insulation features are incorporated into the design of the new land use. By comparison, a "normally

acceptable" designation indicates that standard construction can occur without special noise reduction requirements.

The types of land uses addressed by the state standards and the acceptable noise categories for each are presented in Table 4.3-8 (Land Use Compatibility for Community Noise Sources). There is some overlap between the categories, indicating the importance of judgment required when determining the applicability of the numbers in certain situations.

Table 4.3-8 Land Use Compatibility for Community Noise Sources

Land Use Category	*Noise Exposure (dBA, CNEL)*						
	55	*60*	*65*	*70*	*75*	*80*	
Residential—Low-Density Single Family, Duplex, Mobile Homes							
Residential—Multiple Family							
Transient Lodging—Motels, Hotels							
School, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Areas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							

Table 4.3-8 Land Use Compatibility for Community Noise Sources

Land Use Category	*Noise Exposure (dBA, CNEL)*						
	55	*60*	*65*	*70*	*75*	*80*	
Golf Course, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business, Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but closed windows and fresh air supply or air conditioning will normally suffice.
	Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
	Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: Office of Noise Control, California Department of Health Services.

Title 24 of the California Code of Regulations requires performing acoustical studies before constructing dwelling units in areas that exceed 60 dBA L_{dn}. In addition, the California Noise Insulation Standards identify an interior noise standard of 45 dBA CNEL for new multi-family residential units.

Local

City of Pleasant Hill General Plan

The Safety and Noise Element of the City's General Plan identifies sources of noise in the city and provides goals and policies that ensure that noise from various sources would not create an unacceptable noise environment. It is a tool that City planners use to achieve and maintain land uses with compatible environmental noise levels. The General Plan includes Table 4.3-8, above, which includes normally

acceptable noise limits ranging from 60 to 65 dB in residential areas. However, the City's Zoning Ordinance Section 18.50.060 establishes lower acceptable levels, including a 50 dB exterior maximum for residential areas.

The following goals, objectives and policies from the Safety and Noise Element are relevant to the proposed project:

Safety and Noise Goal 7. Protect persons from noise that interferes with human activity or causes health problems.

> **Safety and Noise Policy 7A.** Require new development projects to be designed and constructed to meet acceptable noise level standards adopted by the City.
>
> **Safety and Noise Policy 7B.** Evaluate the noise impacts of development based on the potential for significant increases in noise levels, in addition to acceptability standards.
>
> > **Safety and Noise Program 7.1.** Amend the Zoning Ordinance to establish acceptable exterior noise level standards for all new developments and additions, including capital improvement projects.
> >
> > **Safety and Noise Program 7.2.** Use the City noise contour map to determine when acoustical studies shall be required.
> >
> > **Safety and Noise Program 7.3.** Amend the Zoning Ordinance to stipulate the specific noise level increases for mobile and stationary sources that will be considered significant.
> >
> > **Safety and Noise Program 7.4.** Lobby Caltrans to resurface all concrete roads between the Walnut Creek city limit and Highway 242 to reduce vehicle noise.
> >
> > **Safety and Noise Program 7.5.** Monitor the proceedings and actions of the Airport Land Use Commission, the County, and the Federal Aviation Administration with respect to operations at Buchanan Field, and inform Pleasant Hill residents of opportunities to participate in relevant public meetings and provide timely comments to these agencies.
> >
> > **Safety and Noise Program 7.6.** Mitigate the impact of noise on residential areas from such activities as garbage and recycling pickup and parking lot vacuuming during nighttime hours.
> >
> > **Safety and Noise Program 7.7.** Evaluate the impacts of vibration when considering proposed development near Interstate 680.
> >
> > **Safety and Noise Program 7.8.** Monitor noise along Contra Costa Boulevard/North Main Street, and identify appropriate methods to rectify unacceptable noise levels in the vicinity of noise-sensitive uses.

Consistency Analysis

The proposed project would be generally consistent with the City's Safety and Noise Goal with implementation of the mitigation measures contained in this section. As described under Impact 4.3-1, construction-related noise could negatively affect nearby sensitive receptors. However, with the implementation of mitigation measures MM4.3-1 though MM4.3-4, construction-related noise would be reduced. This would be consistent with Policy 7A, which requires that new development projects be constructed to meet acceptable noise level standards adopted by the City. Sources of noise generated by implementation of the proposed project would include new stationary sources (such as rooftop heating, ventilation, and air conditioning [HVAC] systems for the residential, commercial, and industrial uses). As

discussed under Impact 4.3-2, these noise sources have the potential to impact sensitive uses located both on- and off-site. Mitigation measures MM4.3-5 though MM 4.3-8 would reduce exterior noise levels affecting nearby sensitive uses to below the maximum noise standard. This would be consistent with Safety and Noise Program 7.6.

The primary source of noise in the vicinity of the proposed project is traffic noise. As discussed in Impact 4.3-3, traffic generated by the proposed project would generate noise along nearby road segments; however, the increase attributed to the proposed project would not be substantial and would not affect nearby sensitive uses both on- and off-site. However, as discussed in Impact 4.3-3 and Impact 4.3-6, sensitive receptors may be exposed to noise levels from traffic and airplanes in excess of the desired exterior noise standard. Implementation of mitigation measures MM 4.3-9 and MM 4.3-10 outlined below would reduce noise levels below City standards. The City's roadway noise contours and the noise contours from Buchanan Field Airport were used in this analysis to determine significant noise impacts. This is consistent with Program 7.2.

City of Pleasant Hill Zoning Ordinance

The City of Pleasant Hill has also adopted a Noise Ordinance (Chapter 9.15 of the Pleasant Hill Municipal Code), which contains regulations concerning noise. Section 9.15.040 states:

> "It is unlawful for a person within a residential land use district to operate or perform construction or repair work on a building, structure or project, or to operate a pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other construction-type device on city-recognized holidays as designated by city council resolution, and on Monday through Friday, prior to 7:30 a.m. and after 7:00 p.m. on each day and on Saturdays and Sundays, prior to 9:00 a.m. and after 6:00 p.m. The above prohibition does not apply to emergency work."

Section 18.50.060 contains maximum noise standards that apply to all zoning districts. When measured at the property line, ambient noise levels shall not exceed the standards listed in Table 4.3-9 (Maximum Noise Standards by Zoning District). Because these noise levels are measured at the property line, these noise levels are assumed to be exterior noise standards. Where noise is measured at the property line of adjacent districts, the noise standard for the more restrictive district applies.

Table 4.3-9 Maximum Noise Standards by Zoning District

Zone of Property Receiving Noise		*Maximum Noise Level, L_{dn} or CNEL (dB)*
R, NB	Residential and Neighborhood Business Districts	50
RB, C	Commercial and Retail Business Districts	60
PAO	Office District	65
LI	Industrial District	70
PUD, PPD	Planned Development, Precise Plan District	Study Required

SOURCE: City of Pleasant Hill Municipal Code, Section 18.50.060.

In addition, Section 18.50.060 includes provisions for the following:

> The noise standards above shall be modified as follows to account for the effects of time and duration on the impact of noise levels:
>
> a. In residential zones, the noise standard shall be five dB lower between 10:00 p.m. and 7:00 a.m.
>
> b. Noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the standards above by five dB.
>
> c. Noise that is produced for no more than a cumulative period of one minute in any hour may exceed the standards above by dB.

4.3.3 Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the noise environment associated with implementation of the proposed project. The primary temporary or short-term source of noise associated with the project would be construction activities. Construction noise could affect existing receptors, as well as possibly newly created receptors. Permanent noise increases could be generated by an increase in traffic volumes associated with project-related trips and from trips associated with other development in the project vicinity. Secondary sources of noise would include the heating, ventilation, and air conditioning units that would be part of the new development associated with the proposed plan. The net increase in noise levels associated with these activities and sources have been quantitatively estimated using methods described below. The levels are then compared to applicable noise standards and the thresholds of significance.

Construction Noise

Construction noise was analyzed using data compiled by the U.S. EPA that lists typical noise levels at 50 feet for construction equipment and various construction activities. Construction noise was then calculated for various distances using equations defined by the FTA. This section assumes that pile driving could be included in any construction activities related to the proposed project.

Roadway Noise

Analyses of existing and future noise environments were based on noise prediction modeling. Traffic noise levels from I-680 and local roads in the vicinity of the project site were modeled using the FHWA Traffic Noise Model Version 2.5 (TNM). Traffic volumes used as data inputs in the TNM model were provided by the traffic study contained in Appendix E. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. Results from the noise modeling are contained in Appendix D. The noise modeling results were confirmed by noise measurements taken in the field. Seven receptor locations were chosen where traffic volumes were expected to increase due to the proposed project. These locations include existing residential and commercial uses located on Golf Club Road, Old Quarry Road, Contra Costa Boulevard, Mayhew Way, Vincent Road, and Hookston Road.

Vibration Levels

Vibration impacts attributed to construction and vehicles along local roadways were evaluated using the FTA's vibration screening procedure contained in its Transit Noise and Vibration Impact Assessment.

Thresholds of Significance

The following thresholds are based on Appendix G of the CEQA Guidelines, as amended. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on noise if it would result in any of the following:

- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels
- Expose people residing or working in the project site to excessive noise levels from a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport

It should be noted that potential impacts with respect to noise levels from a private airstrip were determined to be less than significant in the IS/NOP and are not further analyzed in this section. For a discussion of these impacts, please refer to Appendix A (IS/NOP).

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, a 5 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. Based on this information, a substantial increase in noise levels is defined as an audible increase, or 3 or more decibels.[62]

The CEQA Guidelines also do not define the levels at which groundborne vibration or groundborne noise is considered "excessive." For the purpose of this analysis, groundborne vibration impacts associated with human annoyance would be significant if the proposed project exceeds 80 VdB, which is the vibration level that is considered by FTA to be acceptable only if there are an infrequent number of events per day (as described in Table 4.3-7). In terms of groundborne vibration impacts on structures, this analysis will use FTA's vibration damage threshold of approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings.

[62] Crawford, Multari & Clark Associates, *Draft Environmental Impact Report for the City of Pleasant Hill Draft General Plan,* January 2003, p. 78.

Threshold	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.3-1 **Construction activities associated with the proposed project would result in a substantial temporary or periodic increase in ambient noise levels. However, the project's construction noise impacts would be temporary, would not occur during normal sleep hours, and would be consistent with the exemption for construction noise that exists in the City's Municipal Code. Although this impact would be considered *less than significant*, mitigation measures MM4.3-1 through MM4.3-4 would help reduce construction noise impacts.**

During construction of the proposed project, noise levels would be produced by the operation of heavy-duty equipment and various other grading, demolition, and construction activities. Construction noise levels were estimated using FTA methodology, with the results shown in Table 4.3-10 (Noise Ranges of Typical Construction Equipment).

Table 4.3-10 Noise Ranges of Typical Construction Equipment

Equipment	*Noise Levels in dBA L_{eq} at 50 Feet* [a]
Front Loader	73 to 86
Trucks	82 to 95
Cranes (moveable)	75 to 88
Cranes (derrick)	86 to 89
Vibrator	68 to 82
Saws	72 to 82
Pneumatic Impact Equipment	83 to 88
Jackhammers	81 to 98
Pumps	68 to 72
Generators	71 to 83
Compressors	75 to 87
Concrete Mixers	75 to 88
Concrete Pumps	81 to 85
Back Hoe	73 to 95
Pile Driving (peaks)	95 to 107
Tractor	77 to 98
Scraper/Grader	80 to 93
Paver	85 to 88

SOURCE: U.S. EPA 1971

[a] Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.

As discussed in the environmental setting, there are sensitive uses surrounding the proposed project site, specifically residential neighborhoods to the north, south and west of the DVC Plaza Area and residential uses immediately south of the Hookston Station Area. Construction noise would affect surrounding uses to varying degrees throughout the period of construction under the proposed project, including: demolition, site grading, excavation for infrastructure and building foundations, building construction, and paving and landscaping installation. The Pleasant Hill Municipal Code, Section 19.15.060, exempts construction activities, including pile driving, which occur between the hours of 7:30 a.m. and 7:00 p.m. Monday through Friday. Construction is also limited to the hours between 9:00 a.m. and 6:00 p.m. on Saturday and Sunday. Construction is not permitted on city-recognized holidays as designated by City Council resolution.

Since typical sleeping hours fall outside of the time during which construction would occur, construction noise would not be expected to disturb the sleep of nearby residents. Office, commercial, and light industrial uses in the vicinity of the project site would be open during the day when construction would take place. The noise from construction activities could disturb people working in these buildings, making it difficult to concentrate. Older California building standards (pre-1970) generally provide a reduction of exterior-to-interior noise levels up to about 20 dB with closed windows; newer buildings generally provide a reduction up to about 30 dB. Therefore, the noise levels produced by the equipment (shown in Table 4.3-10) would be higher than what would actually be experienced within residential and commercial structures in the vicinity of the project.

Noise that would be experienced by sensitive uses due to project development is determined at the property line. While the nearest sensitive use varies at different locations in and around the proposed project areas, and as specific development plans have not yet been determined at individual sites, for the purpose of this analysis it is assumed that sensitive receptors could be as close as 50 feet from where construction would take place. Therefore, sensitive receptors in the project vicinity could experience noise levels as high as 107 dBA L_{eq} in the event that pile drivers are used.

However, because construction activities would not occur outside of the time periods described in the Pleasant Hill Municipal Code (Section 19.15.060), the proposed project would not violate established standards in the City of Pleasant Hill. This impact is considered ***less than significant***.

Mitigation Measure(s)

Although construction activities would be exempt under the City of Pleasant Hill Municipal Code (Section 19.15.060), sensitive receptors would still be exposed to excessive noise levels during the allowable construction time period. Implementation of the following mitigation measure would reduce exposure of occupants on and off the project site to noise associated with project construction to the maximum extent feasible. Mitigation measures MM4.3-1 through MM4.3-4 would ensure maximum reduction of noise impacts on receptors near the construction areas by shielding construction activities and staging construction equipment away from residential uses, limiting construction hours to daytime hours, and use of exhaust and intake silencers on construction equipment. These measures would reduce the exposure of occupants both on and off the project site to the maximum extent feasible. Therefore, this impact would be ***less than significant***.

MM4.3-1 *All construction activity within the City shall be conducted in accordance with Section 19.15.060 of the City of Pleasant Hill Municipal Code.*

MM4.3-2 *Each project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit:*

- *Ensure that construction equipment is properly muffled according to industry standards and be in good working condition;*
- *Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible;*
- *Schedule high noise-producing activities between the hours of 8:00 a.m. and 5:00 p.m. Monday through Friday to minimize disruption on sensitive uses;*
- *Implement noise attenuation measures, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources;*
- *Use electric air compressors and similar power tools rather than diesel equipment, where feasible;*
- *Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes; and*
- *Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.*

MM4.3-3 *Each project applicant shall require by contract specifications that construction staging areas along with the operation of earthmoving equipment within the project area would be located as far away from vibration and noise sensitive sites as possible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.*

MM4.3-4 *Each project applicant shall require by contract specifications that heavily loaded trucks used during construction would be routed away from residential streets. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.*

Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.3-2 **Operation of the proposed project could generate increased noise produced by both on-site and off-site stationary sources that could cause a substantial permanent increase in ambient noise levels in the project vicinity. This is considered a potentially significant impact. Implementation of mitigation measures MM4.3-5 through MM4.3-8 would reduce this impact to a *less-than-significant* level.**

Noise generated by implementation of the proposed project would include new stationary sources, such as rooftop heating, ventilation, and air conditioning (HVAC) systems for residential, commercial, and light industrial uses. The proposed project would also introduce new activity and noise to the area as part of the development of a new mix of uses under the proposed project. As shown in Table 4.3-3, noise monitoring in the project area indicates that existing noise levels on-site currently exceed the maximum noise standards contained in the Pleasant Hill Municipal Code (Section 18.50.060). The DVC Plaza Area contains a variety of commercial and office buildings, but is immediately adjacent to high density, multi-family residential uses to the south, west, and north. While the project site itself can allow noise levels as high as 60 dB CNEL, adjacent residential uses only allow noise levels as high as 50 dB CNEL. Existing noise levels in the project vicinity range from 68.2 dB L_{eq} to 72.5 dB L_{eq}. Exposing existing residential uses adjacent to the project site to noise levels even further above maximum noise levels would constitute a significant impact. As the noise levels monitored on site exceed the 65 dBA CNEL, the project site would not meet maximum noise levels for districts zoned for residential uses (50 dB CNEL), commercial and retail uses (60 dB CNEL), or office (65 dB CNEL).

The Hookston Station Area contains light industrial and commercial warehouse uses and would allow a maximum noise level of 70 dB CNEL. Currently, existing noise levels (as shown in Table 4.3-3) do not exceed these levels. However, existing noise levels at the adjacent residential uses south of the project site show a noise level of 66.7 dB L_{eq} which is over the 50 dB CNEL standard. Noise levels at the residential uses were primarily due to heavy truck traffic traveling along Mayhew Road. Operation of the project would contribute additional noise sources associated with building HVAC systems, vehicles, and truck traffic. This would also constitute a significant impact.

HVAC systems would be installed to service the project's residential, commercial, and industrial buildings. Noise generated by HVAC systems can vary significantly depending on the type of equipment and the size. The potential for noise impacts from such equipment would depend on its proximity to noise-sensitive uses, the equipment type and size, and whether the equipment would be surrounded by noise-abating enclosures.

On-site truck activity would be associated with garbage pickup and deliveries to project residential, commercial, and light industrial buildings. The anticipated number of deliveries, types of trucks, truck circulation routes, and anticipated delivery times are not available at this time. However, as the uses proposed for the site include commercial and light industrial, it is likely that deliveries could be

performed by heavy trucks. These loading areas could be close enough to affect nearby residential or other noise-sensitive land uses.

Due to the possibility of stationary source noise exceeding the standards established by the Pleasant Hill Municipal Code at on-site residential and other noise-sensitive uses, the project's operational stationary source noise sources would be considered to have a potentially significant impact.

Mitigation Measure(s)

Implementation of mitigation measures MM4.3-5 through MM4.3-8 would substantially reduce predicted noise levels at noise sensitive receptors by requiring that all project buildings install noise attenuation devices and/or placement of stationary noise emitting equipment to ensure that operational stationary noise levels would meet or exceed the legal requirement of the Pleasant Hill Municipal Code. Implementation of the following mitigation measures would reduce this impact to a *less-than-significant* level.

MM4.3-5 *Each project applicant shall provide proper shielding for all new HVAC systems used by the proposed buildings to achieve an attenuation to 50 dBA CNEL or less at 50 feet from the equipment.*

MM4.3-6 *Garbage storage containers and retail/commercial building loading docks shall be placed to allow adequate separation to shield adjacent residential or other noise-sensitive uses. If the placement of garbage storage containers or loading docks away from adjacent noise-sensitive uses is not feasible, these noise-generating areas shall be enclosed or acoustically shielded to reduce noise-related impacts to these noise-sensitive uses.*

MM4.3-7 *Noise generating stationary equipment associated with proposed commercial and/or office uses, including portable generators, compressors, and compactors shall be enclosed or acoustically shielded to reduce noise-related impacts to noise-sensitive residential uses.*

MM4.3-8 *Prior to issuance of building permits, building plans shall specify the STC rating of windows and doors for all residential land uses. Window and door ratings shall be sufficient to reduce the interior noise level to a CNEL of 45 dBA or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project*

Impact 4.3-3 **Operation of the proposed project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity. This is considered a potentially significant impact. Implementation of mitigation measures MM4.3-9 and MM4.3-10 would reduce this impact to *less than significant*.**

Existing sensitive noise receptors located adjacent to the DVC Plaza Area that would be affected by development of the proposed project are primarily high-density, multi-family residential uses located along Golf Club Road, Old Quarry Road, Chilpancingo Road, and Mayhew Road. There are also single-family residences located in the vicinity of the Hookston Station Area. Most of these residences are exposed to existing traffic noise from the local roads. Increases in ambient noise associated with development of the proposed project would come primarily from traffic.

Noise from Local Roads. The City of Pleasant Hill acceptable exterior noise standard at the property line for residential uses is 50 dB L_{dn} (see Table 4.3-9). Table 4.3-11 (Traffic Noise Levels with and without the Proposed Project) shows the existing peak-hour L_{eq} (dBA) at seven roadway segments that have the potential to be affected by development of the proposed project. However, the City's General Plan uses L_{dn} (or CNEL) to assess noise impacts. L_{dn} is equal to the peak-hour L_{eq} minus two dBA.[63] As discussed in Impact 4.3-2, existing noise levels at the DVC Plaza Area are above the City's maximum noise standards. Although existing noise levels are above these standards, the addition of traffic associated with the proposed project, would not exceed a 3.0 dB increase. As discussed previously, a difference of 3.0 dBA between 24-hour noise levels is a barely perceptible increase to most people. A 5.0 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. The modeled decibel increases range from 0.0 dBA to 1.2 dBA. Therefore, because the contribution of traffic from the proposed project would not cause an increase in noise levels greater than 3 dB at the DVC Plaza Area or the Hookston Station Area, impacts on existing offsite residences due to traffic increases on local roadways are considered less than significant.

Table 4.3-11 Traffic Noise Levels with and without the Proposed Project

Roadway Segment	*Peak-Hour Noise Levels (dBA)*[a]		
	Existing No Project[b]	*Existing Plus Project*[b]	*Increase*
Golf Club Road, between Old Quarry and Contra Costa	60.0	60.7	0.7
Old Quarry Road, between Chilpancingo and Golf Club	59.2	60.4	1.2
Chilpancingo Pkwy, between Old Quarry and Contra Costa	61.6	61.8	0.2
Contra Costa Blvd, between Chilpancingo and Golf Club	67.8	68.1	0.3
Mayhew Way, east of Vincent	58.8	58.8	0.0
Vincent Road, between Hookston and Mayhew	50.5	50.8	0.3
Hookston Road, east of Vincent	60.9	61.0	0.1

SOURCE: PBS&J, 2008.

a Noise levels were calculated based on peak-hour traffic volumes provided in Appendix E. PM peak-hour traffic volumes were used for all roadway segments, where the PM peak hour represented the worst-case noise level increase.

b In order to compare the peak-hour noise levels to the City's L_{dn} maximum noise level standard, L_{dn} is equal to the peak-hour L_{eq} minus two dBA.

Noise from I-680. An additional concern is that sensitive receptors located on the project site would be exposed to noise levels above accepted standards due to their proximity to I-680. According to the City of Pleasant Hill General Plan, approximately half of the DVC Plaza Area would be located within the 60 to 65 dB noise contour as shown on Figure 4.3-3. Thus, exterior noise levels at the proposed residential uses within the 60 to 65 db noise contour would be above 60 dBA L_{dn}. Although specific development plans are not available at this time, because the proposed project could construct residential land uses in close proximity to I-680, this would expose sensitive receptors to noise levels exceed 60 dBA L_{dn}, as established in the City's General Plan and by the California Office of Planning and Research as being

[63] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, p. D-4.

"normally acceptable" for all residential uses; therefore, this would be considered a potentially significant impact.

Mitigation Measure(s)

Because the residential uses that could be constructed as part of the project would be high-density, multi-family dwelling units, it is anticipated that the amount of outdoor areas associated with these units would be limited or nonexistent. However, where patios or balconies would be located, mitigation measure MM4.3-9 would help reduce exterior noise levels. Implementation of mitigation measure MM4.3-10 would ensure that interior noise levels would be substantially reduced from exterior levels. This would reduce this impact to a *less-than-significant* level.

MM 4.3-9 *Within the DVC Plaza Area prior to the issuance of building permits for residential development, building plans shall reflect the construction of noise barriers around exterior patios and balconies in areas exposed to noise levels greater than 60 dBA L_{dn}. The height, design, and materials used in the barriers shall be sufficient to reduce the exterior noise levels to less than 60 dBA L_{dn} and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project. An acoustical study verifying that adequate shielding will be provided shall be submitted by the applicant to the Agency and City prior to issuance of building permits.*

MM 4.3-10 *Prior to issuance of building permits, building plans shall specify the STC rating of windows and doors for all residential land uses located within the DVC Plaza Area. Window and door ratings shall be sufficient to reduce the interior noise level to 45 dBA L_{dn} or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project.*

Threshold	Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Impact 4.3-4 **Construction of the proposed project could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels. While implementation of mitigation measures MM4.3-1 and MM4.3-2 would minimize this impact, it would not reduce it to a less-than-significant level. This is considered a *significant and unavoidable* impact.**

Construction activities would have the potential to generate ground-borne vibration. Table 4.3-12 (Vibration Source Levels for Construction Equipment) identifies various vibration velocity levels for the types of construction equipment that would potentially operate at the proposed project site during construction.

Table 4.3-12 Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB			
	25 Feet	50 Feet	75 Feet	100 Feet
Pile Driver (impact)	104	98	94	92
Large Bulldozer	87	81	77	75
Loaded Trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46

SOURCE: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

Construction activities for the proposed project would primarily affect the residents to the south, west, and north of the DVC Plaza Area, and south of the Hookston Station Area. The closest residence to the DVC Plaza Area is approximately 75 feet west of the project site, while the closest residence to the Hookston Station Area is also approximately 75 feet south of the project site. Construction activities could also affect existing on-site commercial and light industrial uses that would remain on the project site. These uses could be substantially closer to the construction activities than the offsite residential uses 75 feet away.

Like noise, groundborne vibration would attenuate at a rate of approximately 6 VdB per doubling of distance. The groundborne vibration generated during construction activities would primarily impact new sensitive uses (e.g., the 300 potential residences at DVC Plaza) that may be constructed adjacent to, or within, the vicinity of specific projects. These potential residences could conceivably be located as close as 25 feet to a construction site at DVC Plaza or as far as several hundred feet away. Based on the information presented in Table 4.3-12, vibration levels could reach up to 104 VdB at sensitive uses located within 25 feet of construction. For sensitive uses that are located at or within 25 feet of potential project construction sites, sensitive receptors (e.g., residents) at these locations may experience vibration levels during construction activities that exceed the FTA's vibration impact threshold of 80 VdB for residential uses experiencing infrequent vibration events (see Table 4.3-7). So long as construction occurs more than 75 feet from sensitive receptors, the impact associated with groundborne vibration generated by the equipment would be below 80 VdB and thus would be less than significant. However, as specific site plans or constructions schedules are unknown at this time, it may be possible that construction activities could occur as close as 25 feet from proposed sensitive receptors at the DVC Plaza site. Thus, vibration levels would have the potential to exceed the 80 VdB annoyance threshold for construction activities that would occur. Implementation of mitigation measures MM4.3-1 through MM4.3-4 would help to reduce this impact by limiting the hours of construction and locating construction equipment as far from sensitive receptors as feasible; however, this would not reduce impacts to a less-than-significant level; therefore, this impact would remain ***significant and unavoidable***.

Impact 4.3-5 **Operation of the proposed project would not generate and expose sensitive receptors on-site or off-site to excessive groundborne vibration or groundborne noise levels. This is considered a *less-than-significant* impact.**

During operation of the proposed project, background operational vibration levels would be expected to average around 50 VdB, as discussed previously in this section. This is substantially less than the 80 VdB

threshold for people in the vicinity of the project site. Groundborne vibration resulting from operation of the proposed project would primarily be generated by trucks making periodic deliveries to the proposed project site. However, these types of deliveries would be consistent with deliveries that are currently made along roadways to commercial and light industrial uses in the proposed project areas and in the proposed project vicinity and would not increase groundborne vibration above existing levels. Because no substantial sources of groundborne vibration would be built as part of the proposed project, no vibration impacts would occur during operation of the proposed project. Therefore, operation of the proposed project would not expose sensitive receptors on or off site to excessive groundborne vibration or groundborne noise levels, and this impact would be ***less than significant***.

Threshold	Would the project expose people residing or working in the project site to excessive noise levels from a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport?

Impact 4.3-6 **The proposed project could expose people residing or working in the project site to excessive noise levels from the Buchanan Field Airport. This is considered a potentially significant impact. Implementation of mitigation measures MM4.3-9 and MM4.3-10 would reduce this impact to a *less-than-significant* level.**

Due to its proximity to the Buchanan Field Airport, the DVC Plaza Area would be affected by aircraft noise, especially the single-event noise from each individual aircraft flyover. Figure 4.3-4 shows current noise contours associated with Buchanan Field Airport operations. Portions of the northeastern corner of the DVC Plaza Area would be located within the 65 to 70 dB contour; however, the majority of the DVC Plaza Area would be located within the 60 to 65 dB contour. If residential uses were developed within either of these noise contours, noise levels at theses uses would exceed 60 dB L_{dn}, which as stated previously is considered "normally acceptable" for residential uses under the City's General Plan. Because sensitive residential land uses would be developed as part of the project and would experience noise levels above 60 dB L_{dn}, this would be considered a potentially significant impact.

It should be noted that airborne vibration and low-level rattling impacts may sometimes occur in communities directly adjacent to an airport. However, impacts associated with vibration and low-level rattling would not be anticipated to be substantial at the DVC Plaza Area because the Buchanan Field Airport does not include large commercial airliners that are typically associated with airborne vibration impacts. Further, the Airport Land Use Commission requires deed restrictions for residential uses located in areas within the 60 dB contour.

Similar to Impact 4.3-3, implementation of mitigation measures MM4.3-9 and MM4.3-10 would protect sensitive receptors from excessive noise levels associated with both I-680 and the Buchanan Field Airport. Where patios or balconies would be located, mitigation measure MM4.3-9 would help reduce exterior noise levels. Implementation of mitigation measure MM4.3-10 would ensure that interior noise levels would be substantially reduced from exterior levels. This would reduce this impact to a ***less-than-significant*** level.

4.3.4 Cumulative Impacts

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. For construction impacts, only the immediate area around the project site would be included in the cumulative context. For operational/roadway related impacts, the context is existing and future development in the City of Pleasant Hill. This cumulative impact analysis considers development of the proposed project, in conjunction with ambient growth and other development within the vicinity of the proposed project in the City of Pleasant Hill. Noise is by definition a localized phenomenon, and significantly reduces in magnitude as distance from the source increases. The analysis accounts for all anticipated cumulative growth assumed for the traffic study completed for the proposed project.

Increases in noise at sensitive uses would occur as a result of construction of the proposed project, along with other construction in the vicinity. Other construction that may occur in the vicinity of the proposed project site would contribute noise levels similar to those generated for the proposed project. Where this development adjoins the proposed project construction, the combined construction noise levels would have a cumulative effect on nearby sensitive uses. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels; however, cumulative construction noise levels would be in excess of the City's maximum noise levels as shown in Table 4.3-9.

As discussed under Impact 4.3-1, Section 19.15.060 of the City Municipal Code limits construction activities to between the hours of 7:30 a.m. and 7:00 p.m. Monday through Friday, between 9:00 a.m. and 6:00 p.m. on Saturday and Sunday, and also prohibits construction activities on holidays. Because compliance with this construction time limit is required by the City Municipal Code, the proposed project and all other cumulative development would be exempt, and the cumulative impact associated with construction noise in the Pleasant Hill area would be considered less than significant. Similarly, because construction-related noise generated under the proposed project would be exempt from established noise standards, the construction of the proposed project would not be cumulatively considerable and the cumulative impact of the project would also be ***less than significant***.

As discussed under Impact 4.3 2, HVAC systems would be installed to service the project's residential, commercial, and industrial buildings. HVAC systems would also be installed on future development in the City. The potential for noise impacts from such equipment would depend on its proximity to noise-sensitive uses, the equipment type and size, and whether the equipment would be surrounded by noise-abating enclosures. In addition, truck activity associated with cumulative develop would contribute to noise levels in a project's vicinity. As the uses proposed for the site include commercial and light industrial, it is likely that deliveries could be performed by heavy trucks. These loading areas could be close enough to affect nearby residential or other noise-sensitive land uses. Subsequent development would require installation of acoustical shielding in order to reduce noise impacts. Consequently, the cumulative effect of multiple HVAC units, other mechanical equipment, and loading zones could result in a significant impact; however, with implementation of mitigation measures MM4.3-5 through MM4.3-8, the project would not result in a considerable contribution to the cumulative impact. Thus, this impact is considered ***less than significant***.

The proposed project would, in combination with cumulative development in the City, increase noise levels experienced by sensitive receptors due to increased traffic (local and interstate traffic noise sources). The proposed project would also contribute to future traffic volumes along area roadways, which would result in increases in traffic noise levels at off-site receptors. Noise from motor vehicles associated with the proposed project and other cumulative development that would be built over the next approximately 10 years would have an effect on local sensitive receptors. Table 4.3-13 (Traffic Noise Levels with and without the Proposed Project) shows cumulative traffic noise levels both with and without the proposed project at the identified sensitive receptors. As shown in the table, traffic noise increments would range from 0.0 dBA to 1.0 dBA. Because the increase in noise levels for cumulative conditions due to the project's contribution would be less than 3.0 dBA, which is a barely perceptible increase to most people, this impact is considered cumulatively ***less than significant***.

Table 4.3-13 Traffic Noise Levels with and without the Proposed Project

Roadway Segment	*Peak-Hour Noise Levels (dBA)*[a]		
	Existing No Project[b]	*Existing Plus Project*[b]	*Increase*
Golf Club Road, between Old Quarry and Contra Costa	61.4	61.8	0.4
Old Quarry Road, between Chilpancingo and Golf Club	60.3	61.3	1.0
Chilpancingo Pkwy, between Old Quarry and Contra Costa	62.1	62.3	0.2
Contra Costa Blvd, between Chilpancingo and Golf Club	68.6	68.8	0.2
Mayhew Way, east of Vincent	59.9	60.0	0.1
Vincent Road, between Hookston and Mayhew	50.9	51.1	0.2
Hookston Road, east of Vincent	61.4	61.4	0.0

SOURCE: PBS&J, 2008.

[a] Noise levels were calculated based on peak-hour traffic volumes provided by Pleasant Hill Commons Traffic Study (May 2008). PM peak-hour traffic volumes were used for all roadway segments, where the PM peak hour represented the worst-case noise level increase.

[b] In order to compare the peak-hour noise levels to the City's L_{dn} maximum noise level standard, L_{dn} is equal to the peak-hour L_{eq} minus two dBA.

As discussed in Impact 4.3-4, the proposed project's construction would produce temporary vibration impacts. However, the construction vibration impact would be significant and unavoidable. Cumulative development in the City of Pleasant Hill is not considered likely to result in the exposure of on-site or off-site receptors to excessive groundborne vibration due to the localized nature of vibration impacts, the fact that all construction would not occur at the same time and at the same location, and the largely built-out nature of the City. Only receptors located in close proximity to each construction site would be potentially affected by each activity. As individual development projects may be constructed concurrently with each other or other related projects, it is possible that intense construction from two or more projects would simultaneously occur at distances of 50 feet or less from existing nearby receptors. Therefore, vibration from future development could potentially combine with construction vibration of the proposed project to result in a potentially significant cumulative impact. Mitigation measures MM4.3-1 through MM4.3-10 would help reduce this impact, but not to a less than significant level. Therefore, the cumulative impact of the proposed project would be *significant and unavoidable*.

Groundborne vibration could conceivably be generated by operation of the proposed project and related projects in the vicinity of the proposed project. Since no substantial sources of groundborne vibration would be built as part of the proposed project, no vibration impacts would occur during operation of the proposed project. The same is expected to hold true for other projects in the vicinity of the proposed project areas. Consequently, there would be no cumulative operational groundborne vibration impacts to any on-site or off-site receptor. This impact would be *less than significant*.

4.3.5 References

California Department of Transportation, Noise, Air Quality, and Hazardous Waste Management Office, *Technical Noise Supplement*, October 1998.

_____ , Traffic Data Branch, Traffic and Vehicle Data Systems Unit, 2006, <www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm>, accessed May 13, 2008.

City of Pleasant Hill Municipal Code, Section 18.50.060.

Crawford, Multari & Clark Associates, Draft Environmental Impact Report for the City of Pleasant Hill Draft General Plan, January 2003.

Federal Transit Administration, Transit Noise and Vibration Impact Exposure, May 2006.

U.S. Department of Transportation Federal Railroad Administration, High-Speed Ground Transportation Noise and Vibration Impact Assessment, October 2005.

U.S. Environmental Protection Agency, Office of Noise Abatement and Control, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974.

4.4 TRANSPORTATION/TRAFFIC

This section analyzes potential traffic impacts at eleven intersections in the vicinity of the DVC Plaza Area site and the Hookston Station Area site and identifies mitigation measures, where appropriate. The traffic impact study has been conducted to meet the requirements of the City of Pleasant Hill and the Congestion Management Agency (CMA) for Contra Costa County. This section provides a summary of the results of a traffic study performed for the proposed project by PBS&J, which is included as Appendix E to this document.

Comments raised in response to the NOP that related to traffic (see Appendix B) included a request from the California Department of Transportation (Caltrans) with regard to how the impacts of the proposed project are analyzed and presented.

4.4.1 Environmental Setting

This subsection describes the existing regional and local roadway network, traffic conditions at study intersections, transit services, and programmed transportation improvements in the vicinity of the project area. Figure 4.4-1 (Site Map) illustrates the project location in relation to the area roadway network.

Area Roadway Network

The traffic study area was determined through initial consultation with the City of Pleasant Hill and the Pleasant Hill Redevelopment Agency.

Regional Access

Regional access to the proposed project site is provided by Interstate 680 (I-680) and State Route 242 (SR 242).

Interstate 680 (I-680) is a six-to-eight-lane, north-south freeway located immediately east of the DVC Plaza area and west of the Hookston Station area. I-680 provides regional access to Martinez, Solano County and other points north of the proposed project area, and Walnut Creek, Alameda County and other points to the south. Access to I-680 is provided along Contra Costa Boulevard at Chilpancingo Road, Taylor Boulevard, Monument Boulevard, and Gregory Lane.

Local Access

Local access to the DVC Plaza site is provided by Contra Costa Boulevard, Chilpancingo Road, Golf Club Road, and Old Quarry Road. Local access to the Hookston Station site is provided by Hookston Road, Buskirk Avenue, Mayhew Way, Vincent Road and Bancroft Road. Below is a description of each local roadway the serves the project area.

Contra Costa Boulevard is classified in the Pleasant Hill General Plan as an arterial that runs in the north-south direction. Caltrans completed construction of the realignment of Contra Costa Boulevard just

south of Boyd Road with Contra Costa Boulevard on the north side of Boyd Road. From Gregory Lane south to Boyd Road, Contra Costa Boulevard is six travel lanes wide, three in each direction, with no parking allowed.

From Boyd Road south to Astrid Drive, Contra Costa Boulevard southbound is three lanes wide; one lane becomes the I-680 southbound on-ramp, while the other two continue through and become N. Main Street at the city limits. Within this same segment, Contra Costa Boulevard northbound is three lanes wide formed by the merging of two through lanes from Contra Costa Boulevard (by way of a flyover ramp) and one lane from I-680 northbound off-ramp. Between Astrid Drive and Oak Park Boulevard, this street consists of two lanes in each direction. It serves as a frontage road for I-680 providing direct access and serving through-traffic needs for adjacent residential and commercial land uses.

Chilpancingo Road is an arterial from a signalized intersection at Contra Costa Boulevard west to Martinez. With a full interchange at I-680, the Parkway attracts through traffic and provides access to Diablo Valley College via Old Quarry Road. Chilpancingo Parkway also serves adjacent commercial and medium-density multifamily residential development. The eastern extension of this parkway is Concord Avenue, a major access route to downtown Concord.

Golf Club Road is a four-lane divided arterial west from Contra Costa Boulevard to Paso Nogal Road, with signalized intersections at Contra Costa Boulevard and Old Quarry Road; two-lane road west to terminus at Contra Costa Country Club. Golf Club Road also provides access to residential uses, Diablo Valley College, and several small retail centers.

Hookston Road is an east-west collector adjacent to the proposed Hookston Station Area site. Hookston Road is a two-lane roadway that provides access for residents to Buskirk Avenue. Hookston begins at Bancroft Road and ends at Buskirk Avenue.

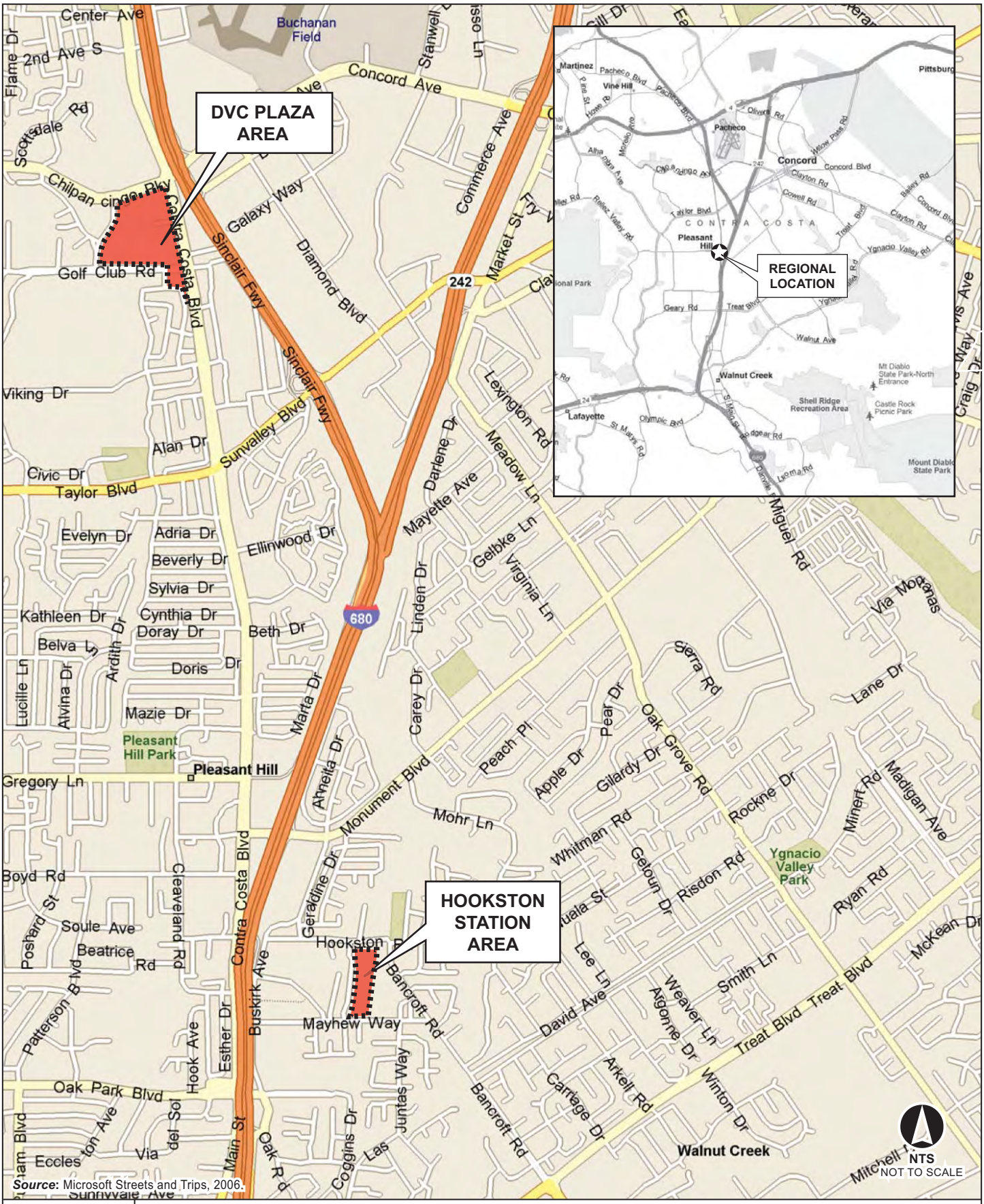
Buskirk Avenue is a north-south arterial street that runs between Monument Boulevard to the north and Coggins Road to the south. Buskirk Avenue provides direct access to the project site through several driveways serving the shopping center to the west.

Old Quarry Road a short north-south four-lane collector with signals at Chilpancingo Parkway and Golf Club Road (Diablo Valley College), and a four-way stop at Camelback Road.

Mayhew Way is a two-lane, east-west local street that runs between Buskirk Avenue and Bancroft Road. Mayhew Way provides access to the project site as well as residential uses in the area.

Vincent Road is a two-lane, north-south local street that runs between Hookston Road and Mayhew Way. Vincent Road bisects the project site and provides access to primarily light industrial uses.

Bancroft Road is a two-lane, predominantly east-west local street that runs between Hookston Road and Geary Road. Bancroft Road provides access to primarily residential uses.



Source: Microsoft Streets and Trips, 2006.

FIGURE **4.4-1**

Site Map

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Pleasant Hill Commons

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Existing Study Area Intersections

The scope of the transportation analysis was developed under the direction of the City of Pleasant Hill staff. Figures 4.4-2 (DVC Plaza Study Intersections) and 4.4-3 (Hookston Station Study Intersections) identify the eleven intersections in the vicinity of the DVC Plaza Area and Hookston Station Area project sites that were evaluated as part of this analysis:

1. Chilpancingo Parkway and Old Quarry Road
2. Chilpancingo Parkway and Contra Costa Boulevard
3. Contra Costa Boulevard and Cottonwood Drive
4. Contra Costa Boulevard and Golf Club Road
5. Old Quarry Road and Golf Club Road
6. Hookston Road and Buskirk Avenue
7. Hookston Road and Vincent Road
8. Hookston Road and Estand Way
9. Hookston Road and Bancroft Road
10. Vincent Road and Mayhew Way
11. Mayhew Way and Buskirk Avenue

Existing Traffic Volumes and Level of Service

Existing Traffic Operations

Traffic operating conditions are evaluated on the basis of the concept of Level of Service (LOS). Intersection LOS ranges from A (which indicates free flow or excellent conditions with short delays), to F (which indicates congested or overloaded conditions with long delays). The City considers LOS A, B, C, and D to be satisfactory service levels, LOS E is considered undesirable, and LOS F conditions are unacceptable. There are two distinct methodologies by which LOS is determined for signalized and unsignalized intersections.

Levels of Service for Signalized Intersections

The analysis of signalized intersections has been performed using the Synchro (version 7) traffic model program. This program is an approved analysis tool for projects analyzed by agencies under the jurisdiction of the CCTA. Synchro is compatible with the CCTALOS methodology that involves computing a Volume-to-Capacity Ratio (V/C) in which the "volumes" are the traffic for each approach into an intersection and the "capacities" are determined by the number of through and turning lanes for each approach. The phasing of each traffic signal is also an internal component of the V/C computation. There is a direct relationship between the V/C ratio and the level of service. Each level of service is defined in terms of a range of V/C ratios.

Source: PBS&J, 2008.

FIGURE **4.4-2**

DVC Plaza Study Intersections

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LEGEND

STUDY INTERSECTION

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-3**

Hookston Station Study Intersections

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Table 4.4-1 (Level of Service Criteria for Signalized Intersections) shows the relationship between LOS and V/C ratios. Each of the evaluations of the study intersections involves the computation of a V/C ratio and a translation into LOS based on the table below. For signalized intersections, acceptable levels of service are defined as LOS D (V/C>0.84) or better as indicated in the City's General Plan.

Table 4.4-1 Level of Service Criteria for Signalized Intersections

Level of Service	*Sum of Critical Volume-to-Capacity (V/C) Ratios*
A	< 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00

SOURCE: Contra Costa Transportation Authority, Technical Procedures, September 2006.

Levels of Service for Unsignalized Intersections

Any unsignalized intersections (stop-controlled) were evaluated using the procedures outlined in Chapter 10 of the Highway Capacity Manual (HCM), Transportation Research Board, fourth Edition, Updated 2000. The HCM manual provides an estimate of the average delay per vehicle for each movement as well as for the whole intersection. The LOS definitions for unsignalized intersections are shown in Table 4.4-2 (Level of Service Criteria for Unsignalized Intersections) below. For unsignalized intersections, the City's identified acceptable level of service is LOS C.

Table 4.4-2 Level of Service Criteria for Unsignalized Intersections

Level of Service	*Average Delay in Seconds*
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

SOURCE: Highway Capacity Manual, Transportation Research Board, fourth Edition, Updated 2000.

In addition to using average delay experienced by vehicles to measure performance and the comparison between existing and future conditions, another criterion for determining when mitigation is required at an unsignalized intersection is the satisfaction of one or more traffic signal warrants. Traffic signal warrants are a set of criteria outlined in the Caltrans Traffic Manual. These criteria determine whether it is justified to install a signal at an intersection based on variables such as traffic volumes, pedestrian volumes, vehicular delays, accident rates, etc.

Intersection Traffic Counts

Intersection capacity analyses were performed for both AM and PM peak hours under existing conditions. These analyses used hourly volumes derived from existing traffic counts that were conducted on Tuesday, Wednesday and Thursday, March 11, 12, and 13, 2008, between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m..

The existing lane configurations at each of the study intersections are displayed in Figures 4.4-4 (DVC Plaza Existing Intersection Geometry) and 4.4-5 (Hookston Station Existing Intersection Geometry). The existing traffic volumes for the weekday AM and PM peak hours at these intersections are shown in Figures 4.4-6 (DVC Plaza Existing Traffic Volumes) and 4.4-7 (Hookston Station Existing Traffic Volumes).

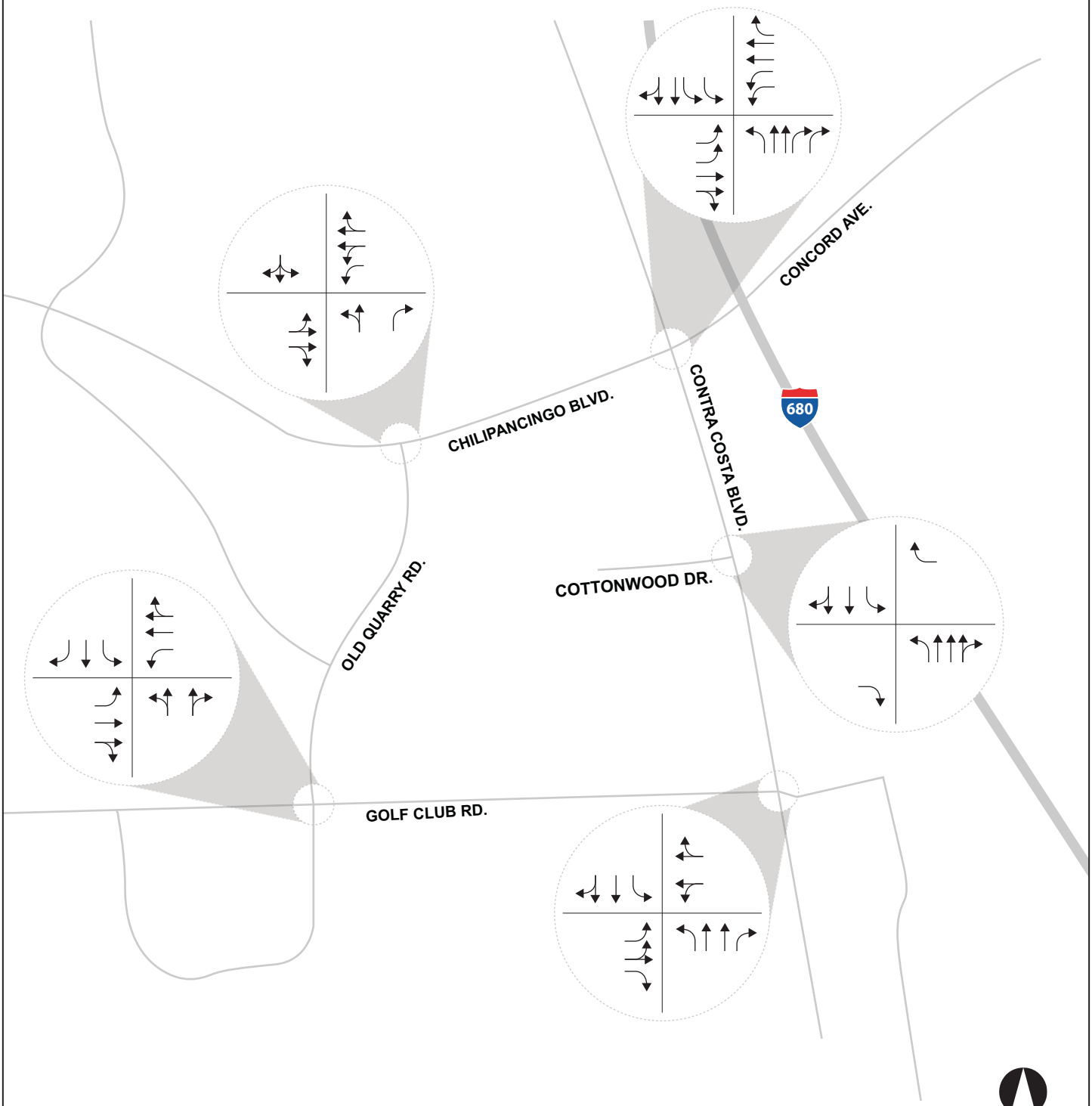
The results of the intersection analyses are presented below in Table 4.4-3 (Existing Conditions—Intersection Levels of Service). The results show that all of the intersections, except two, operate at acceptable levels of service under existing weekday peak hour conditions. The intersection of Contra Costa Boulevard/Chilpancingo Road currently operates at LOS E (V/C=0.97) during the PM peak hour. In addition, the westbound left turning movement at the intersection of Buskirk Avenue/Mayhew Way also operates at LOS F with 244.1 seconds of delay for that approach under existing conditions.

Table 4.4-3 Existing Conditions—Intersection Levels of Service

		AM Peak Hour		PM Peak Hour	
Intersection	*Type of Control*	*V/C ratio/ Delay[a]*	*LOS*	*V/C ratio/ Delay[a]*	*LOS*
Chilpancingo Parkway/Old Quarry Road	Signal	0.38	A	0.32	B
Contra Costa Boulevard/Chilpancingo Parkway	Signal	0.66	C	0.97	E
Contra Costa Boulevard/Cottonwood Drive	Two-Way Stop	10.1	A	11.6	B
Contra Costa Boulevard/Golf Club Road	Signal	0.72	C	0.66	C
Golf Club Road/Old Quarry Road	Signal	0.46	B	0.27	C
Buskirk Avenue/Mayhew Way	Two-Way Stop	244.1	F	125.1	F
Buskirk Avenue/Hookston Road	Two-Way Stop	21.7	C	23.2	C
Hookston Road/Vincent Road	Two-Way Stop	24.7	C	22.7	C
Hookston Road/Estand Way	Two-Way Stop	14.8	B	16.4	C
Hookston Road/Bancroft Road	Signal	0.52	A	0.44	A
Vincent Road/Mayhew Way	Two-Way Stop	12.6	B	11.7	B

SOURCE: Delay and LOS based on HCM methodologies using the Synchro (v. 7) software, PBS&J, 2008.

[a] For unsignalized intersections (in seconds) worst approach delay and LOS shown



NTS
NOT TO SCALE

Source: PBS&J, 2008.

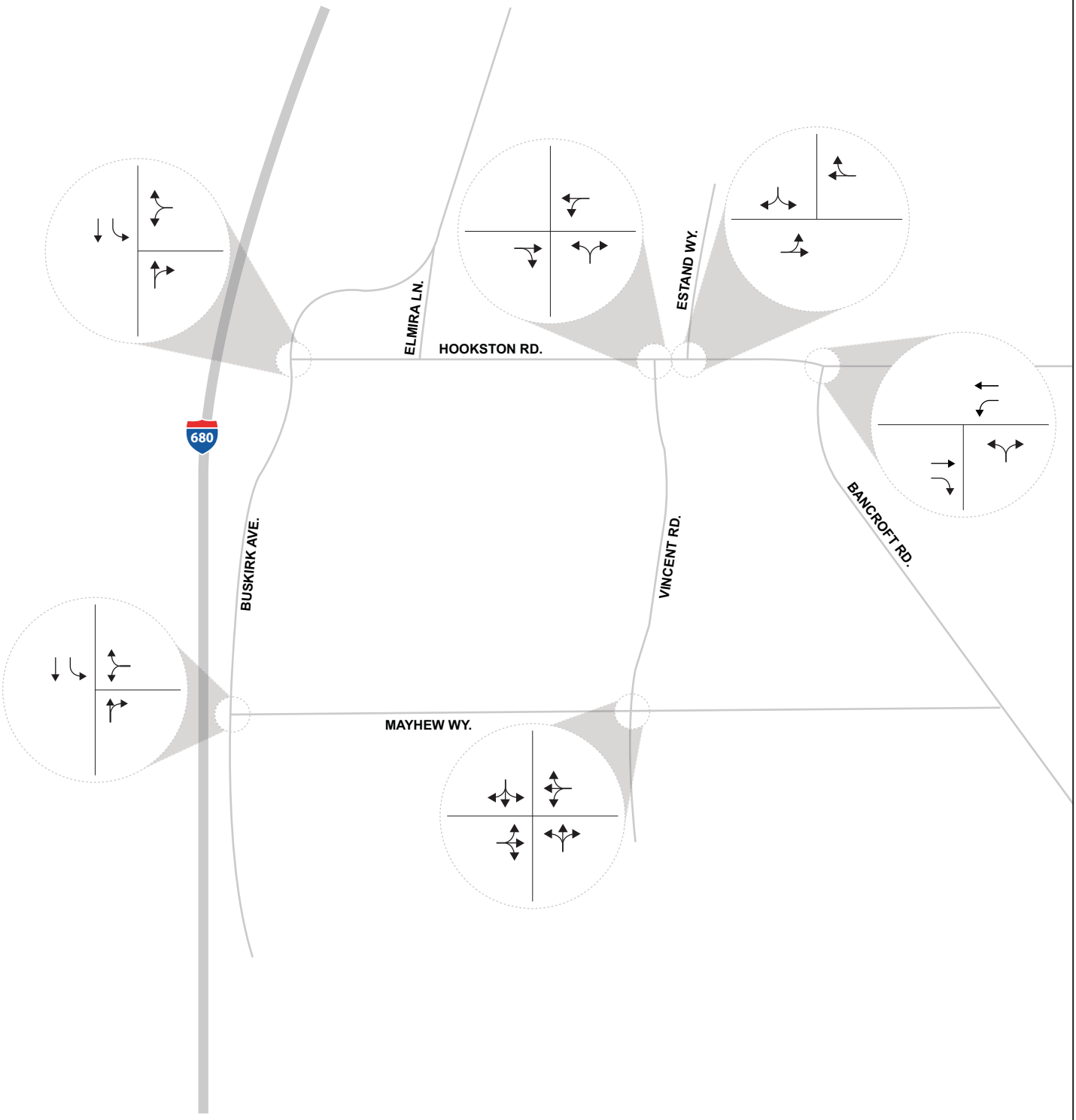
FIGURE **4.4-4**

DVC Plaza Existing Intersection Geometry

100000662

Pleasant Hill Commons

08000 | JCS | 08



NTS
NOT TO SCALE

Source: PBS&J, 2008.

FIGURE **4.4-5**

Hookston Station Existing Intersection Geometry

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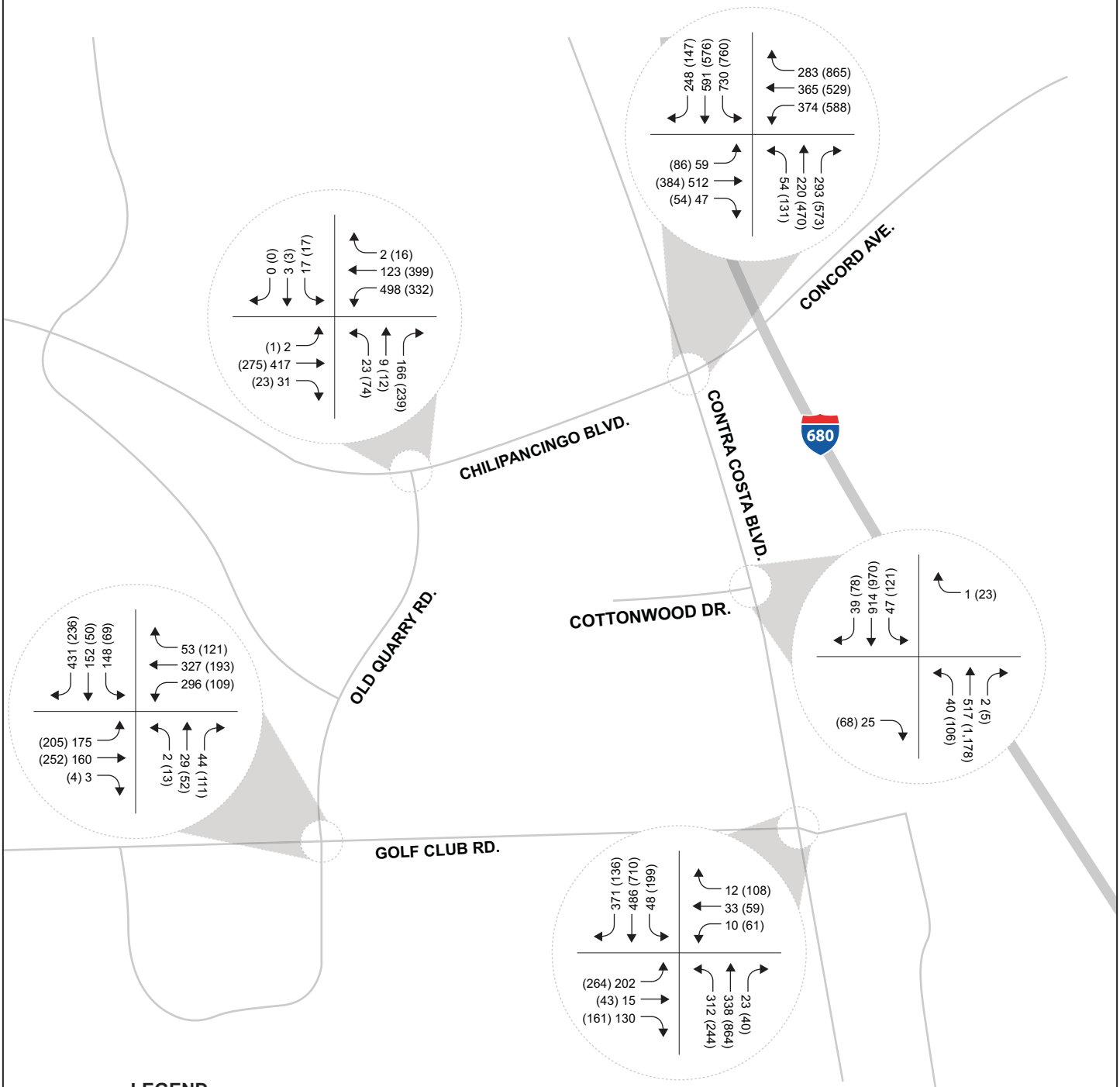
Pleasant Hill Commons

08000 | JCS | 08



LEGEND

36 AM Peak

(54) PM Peak

NTS
NOT TO SCALE

Source: PBS&J, 2008.

FIGURE **4.4-6**

DVC Plaza Existing Traffic Volumes

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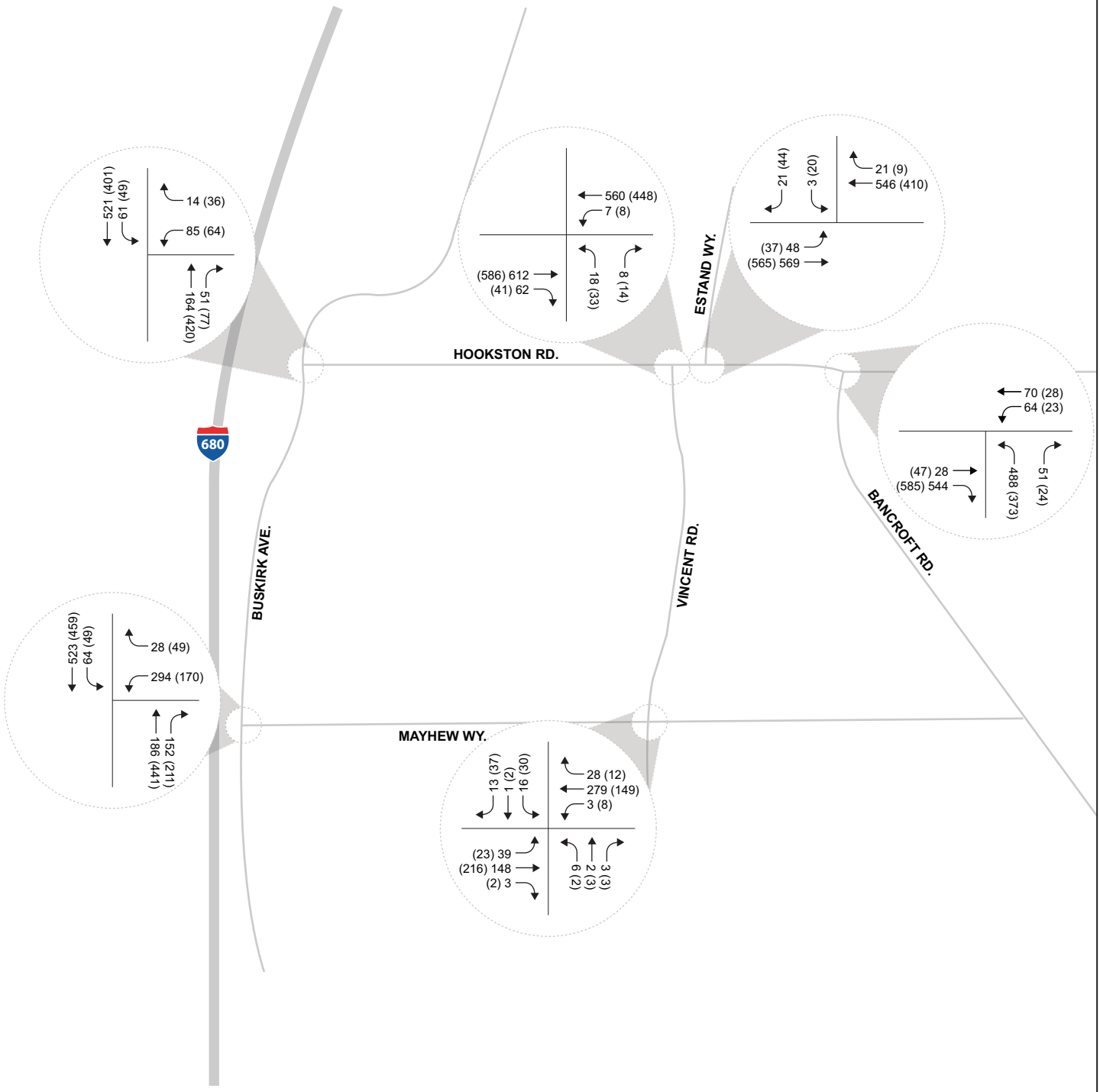
Pleasant Hill Commons

03030 | JCS | 08



LEGEND
36 AM Peak
(54) PM Peak

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-7**
Hookston Station Existing Traffic Volumes

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Pleasant Hill Commons

03030 | JCS | 08

Planned Improvements

As stated previously in Chapter 3, Project Description, several funded or planned roadway improvements are included within the study area. The improvements identified below are listed in the CCTA Seven-Year Capital Improvement Program (CIP) that was approved in November 2007, and are consistent with the City's Circulation Element.

1. **Contra Costa Boulevard Gap Closure:** Construct additional right and left turn lanes on Contra Costa Boulevard between 2nd Ave and Monument Blvd at various intersections, modify intersection lane alignments, add new class II bike lane, improve traffic operations throughout corridor.
2. **Contra Costa Boulevard at Concord Avenue—Urban diamond:** Study intersection to evaluate possibility of the installation of an urban diamond. Limits: Contra Costa Boulevard at Concord Ave/Chilpancingo Parkway.
3. **Mayhew Way Widening:** Widen Mayhew Way to accommodate a right turn lane onto Buskirk Avenue. Scope consists of roadway widening, sidewalk replacement, and right of way acquisition. Limits: Mayhew Way (at Buskirk Avenue intersection).
4. **Contra Costa Boulevard Improvement Project:** Roadway widening, intersection geometry modification, and signal upgrade at every intersection along Contra Costa Boulevard within the project limit. Redo landscaping along corridor, as well as install pedestrian improvements to make corridor ADA compliant. Limits: Contra Costa Boulevard (between northern city limit and Taylor Boulevard).
5. **Buskirk Avenue Improvements Phase II:** The project will provide four lanes and left turn pockets with potential re-alignment of Buskirk Ave. between Hookston Rd. and Monument Blvd.
6. **Hookston Road Improvements:** The project would overlay the street to three lanes (two lanes with left turn pockets) and would bring street up to current design standards.
7. **Contra Costa Boulevard/Golf Club Road Intersection Improvements:** The project which is part of the current CIP update will consist of making improvements to the signalized intersection.

Transit System

Both the DVC Plaza Area and the Hookston Station Area are served by bus transit which is available in the immediate vicinity, with bus stops located on adjacent streets. Transfers/connections to the nearby Pleasant Hill BART station are available via the bus system. These transit services are described below.

County Connection

County Connection provides bus service to various communities in central Contra Costa. In the immediate vicinity of the proposed project area, Bus Routes #102, #108, #109, #110, #114, #116, #127, and #980 provides service to the project area.

Bus Route 102

Frequency of service for Bus Route #102 ranges from approximately every 30 minutes in both directions during peak periods up to every 70 minutes during off-peak periods. This route connects the Diablo

Valley College with the Walnut Creek BART station and Rudgear Park in Walnut Creek and travels along Chilpancingo Parkway in the project vicinity. The route stops within walking distance of the DVC Plaza at the site of the proposed DVC Transit Center, located south of the intersection of Old Quarry Road and Golf Club Road. Transit usage from the proposed project is not expected to be high.

Bus Route 108

This route connects the Martinez Amtrak Station with the Martinez BART station. Bus Route #108 also connects the Kaiser Hospital in Martinez to Diablo Valley College on select trips (approximately 3 times per day). The route travels along Contra Costa Boulevard and Chilpancingo Parkway in the project vicinity. While bus stops are within walking distance of both areas of the proposed project, transit usage from the proposed project is not expected to be high.

Bus Route 109

Frequency of service for Bus Route #109 ranges from approximately every 40 minutes in both directions during peak periods up to every 50 minutes during off-peak periods. This route connects Diablo Valley College with the Pleasant Hill BART station and travels along Golf Club Drive in the project vicinity. While bus stops are within walking distance of both areas of the proposed project, transit usage from the proposed project is not expected to be high.

Bus Route 110

This route connects Diablo Valley College with the Concord BART station and Diablo View Middle School in Clayton and travels along Golf Club Drive in the project vicinity. Buses stop in the vicinity of the DVC Plaza Area approximately every 15 minutes during the weekdays.

Bus Route #114

Frequency of service for Bus Route #114 ranges from approximately every 20 minutes in both directions during peak periods up to every 30 to 40 minutes during off-peak periods. This route connects the Pleasant Hill BART station with the Concord BART station and travels along Mohr Lane and Monument Boulevard in the project vicinity. While bus stops are within walking distance of both areas of the proposed project, transit usage from the proposed project is not expected to be high.

Bus Route # 116

Frequency of service for Bus Route #116 is approximately every 15 minutes in both directions during peak periods. While bus stops are located within easy walking distance of both areas of the proposed project, transit usage from the proposed project is not expected to be high. This route travels along Gregory Lane, Contra Costa Boulevard, and Buskirk, in the vicinity of the proposed project area.

Bus Route #127

Buses are spaced along Bus Route #127 such that a new bus arrives at a given stop approximately every 15 minutes. This route connects the North Concord/Martinez BART Station with Diablo Valley College and travels along Contra Costa Boulevard and Chilpancingo Parkway in the project vicinity.

Bus Route #980

Frequency of service for Express Bus Route #980 ranges from approximately every 30 minutes in both directions during peak periods up to every 45 minutes during off-peak periods. This route connects the Martinez Amtrak Station to the Walnut Creek BART station and makes one stop in the project vicinity at Contra Costa Boulevard and Viking Drive. While bus stops are within walking distance of both areas of the proposed project, transit usage from the proposed project is not expected to be high.

Bay Area Rapid Transit (BART)

BART provides heavy rail passenger service within the metropolitan Bay Area. BART currently has five operating lines: Pittsburg/Bay Point-Colma, Fremont-Daly City, Richmond-Colma, Dublin/Pleasanton-Daly City, and Fremont-Richmond. BART operates between 4:00 a.m. and midnight on weekdays. During the AM and PM peak commute periods, train service runs at 15-minute intervals to each destination.

The closest BART station to both the DVC Plaza and Hookston Station areas is located in Pleasant Hill on the east side of I-680 near the Treat Boulevard interchange. This station is situated along the Pittsburg/Bay Point line.

Existing Bicycle Facilities

The City of Pleasant Hill has an extensive bicycle network which can be classified in terms of the California Street and Highways Code's three categories of bikeways; this system is based on the needs and the physical conditions of the right-of-way.

Class 1 Bikeway—Bike path or bike trails: These facilities are constructed on separate right-of-way, are completely separated from the street traffic and have minimal crossflows of automobile traffic. The state standard for minimum paved width of a two-way bike path is eight feet.

Class 2 Bikeway—Bike lane: A restricted right-of-way for the exclusive use of bicycles with vehicle parking and crossflow by pedestrians and motorists permitted. Bike lanes are normally striped within paved areas of highways and are one-directional with a minimum standard width of five feet.

Class 3 Bikeway—Bike route: A route for bicyclists designated by signs or other markings and shared with pedestrians and motorists. Bike routes are typically designated to provide linkages to the bikeway system where Class 1 or 2 Bikeways cannot be provided.

The City's bikeway along the Contra Costa Canal, which is adjacent to the DVC Plaza area is a Class 1 bikeway, is the only bicycle facility in the vicinity of the proposed project.

Existing Pedestrian Facilities

Pedestrian facilities, within the project area, are available as paved sidewalks along Buskirk Avenue and Monument Boulevard. The minimum sidewalk width in the project area is six feet. Along Monument Boulevard, sidewalks exist on both sides of the roadway; however, along Buskirk Avenue, there is a sidewalk only along the west side. The Pleasant Hill General Plan emphasizes the importance of improving facilities for pedestrians for many reasons especially to increase safety.

4.4.2 Regulatory Framework

Federal

There are no federal regulations related to transportation/circulation that apply to the proposed project.

State

Statewide Transportation Improvement Program (STIP)

Caltrans administers transportation programming for the state. Transportation programming is the public decision making process which sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multi-year period to transportation projects. The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the State Highway Account and other funding sources.

Regional

Contra Costa County Congestion Management Plan (Measures C and J)

The Contra Costa Transportation Authority is responsible for implementing Measure C and state-mandated Congestion Management Program standards that must be met or exceeded by this Growth Management Element. The state distributes a portion of gas tax revenue to local governments that comply with the countywide Growth Management Program, and the county allocates additional sales tax revenues to cities that participate in programs to generate:

- Traffic level of service standards for designated roadways;
- Standards for public transit frequency, routing, and coordination of service;
- Trip reduction and travel-demand measures;
- Analysis of impacts on regional transportation systems from land use decisions made by local jurisdictions; and
- A capital improvement program to maintain or improve traffic levels of service and transit performance.

Transportation Authority funds may not be used to replace private developer funding for transportation projects determined to be required to meet or maintain standards for new growth. The City's Community Development element sets forth policies for allocating land uses and maintaining a circulation system

that provides acceptable levels of service (LOS). The Growth Management Element adds a concurrency requirement that specifies traffic LOS standards that must be maintained if growth is to occur. This element differentiates between Routes of Regional Significance, Basic Routes, and Reporting Intersections.

Routes of Regional Significance are arterials subject to Action Plans prepared by the City in cooperation with TRANSPAC (the Regional Transportation Planning Committee for Central Contra Costa County) and the Contra Costa Transportation Authority, and located near the project sites are as follows:

- Interstate 680
- Contra Costa Boulevard

Local

City of Pleasant Hill General Plan—Circulation Element

The 2003 General Plan Circulation Element for City of Pleasant Hill was reviewed for goals and policies that would be applicable to the proposed project. Goals and policies presented in the Circulation Element of the General Plan related to traffic that are potentially relevant to the proposed project are identified below:

Circulation Goal 1. Establish and maintain a safe and efficient circulation system that emphasizes the use of existing arterial and collector roadways, paths, and bike lanes.

> **Circulation Policy 1A.** Maintain rights-of-way at current widths, except as necessary to relieve specific areas of congestion.
>
> > **Circulation Program 1.1.** Identify specific roadway segments where right-of-way widening, narrowing, or extension may be appropriate or will likely be needed to improve safety.
> >
> > **Circulation Program 1.2.** Continue to provide a forum such as the Traffic Safety Committee for citizen input on traffic-related issues.
> >
> > **Circulation Program 1.3.** Evaluate intersections with the highest accident rates.
> >
> > **Circulation Program 1.4.** Provide roadway improvements necessary to meet the LOS standards established for Basic Routes in the Growth Management Element.
> >
> > **Circulation Program 1.5.** Require developers to establish comprehensive construction traffic plans, for approval by City staff, which denote haul routes, detours, and other factors that may impact public safety.

Circulation Goal 2. Decrease traffic delays associated with specific streets and uses.

> **Circulation Policy 2A.** Consider right-of-way widening, signalization, turn and/or parking restrictions, additional turning lanes, and other mitigation measures near schools and other uses with congested conditions.
>
> > **Circulation Program 2.1.** Sponsor forums to obtain citizen input regarding the appropriateness of roadway improvements aimed at reducing local traffic congestion.
> >
> > **Circulation Program 2.2.** Evaluate the level of service at intersections that are congested during the peak hour, and develop mitigation measures to alleviate that congestion.

Circulation Goal 3. Reduce speeding, especially in neighborhoods.

Circulation Policy 3A. Focus traffic control efforts in residential areas that experience excessive traffic or speeding.

Circulation Program 3.1. Continue to implement adopted criteria/policies regarding the installation of traffic-calming measures.

Circulation Program 3.2. Undertake traffic-calming measures in identified locations, including around schools as needed.

Circulation Program 3.3. Sponsor forums to obtain citizen input regarding the appropriateness of road improvements intended to reduce speeding.

Circulation Goal 4. Reduce congestion and vehicle trips through non-automobile transportation.

Circulation Policy 4A. Maintain and upgrade the City's bikeway and pedestrian system.

Circulation Policy 4B. Encourage use of bus and rail service for local and regional travel.

Circulation Program 4.1. Identify areas where bikeway connections can be added and/or made safer.

Circulation Program 4.2. Install additional bike lanes, routes, trails and connections where feasible.

Circulation Program 4.3. Work with County Connection to ensure that local bus and shuttle service meets community needs.

Circulation Program 4.4. Explore incentives for public employees to not commute by automobile.

Circulation Program 4.5. Expand use of transit for seniors, students, and persons with disabilities.

Circulation Program 4.6. Work with employers, schools, and developers to encourage ridesharing and transit use.

Circulation Program 4.7. Work with employers, schools, and developers to encourage innovative transportation measures.

Circulation Goal 5. Ensure that streets are safe and pedestrian-friendly.

Circulation Policy 5A. Install or upgrade sidewalks, warning devices, crosswalks, and other pedestrian aids where appropriate.

Circulation Program 5.1. Identify areas where sidewalks, curb cuts, ramps, and other pedestrian amenities should be installed or upgraded.

Circulation Program 5.2. Identify ways that education and police enforcement can improve pedestrian safety.

Circulation Goal 6. Prioritize access and mobility for persons with disabilities.

Circulation Policy 6A. Improve sidewalks to facilitate access by persons with disabilities.

Circulation Program 6.1. Identify specific locations where access for persons with disabilities needs to be improved.

Circulation Program 6.2. Identify grants that may be used to assist in the funding of projects that will improve access for persons with disabilities.

Consistency Analysis

Generally, the proposed project is consistent with applicable goals and policies of the Circulation Element. As described under Impact 4.4-1, the proposed project would not contribute to unacceptable levels of service at local intersections, with the exception of one intersection. Further, the proposed project is intended to provide additional community resources on underutilized parcels within the city and bolster the economic viability of the area. New development within the project area would encourage the continued and expanded use of alternative transportation via rail, bus, pedestrian and bicycle traffic. Consequently, implementation of the proposed project would not conflict with the above-listed policies.

4.4.3 Project Impacts and Mitigation Measures

Analysis Methodology

The study intersections were analyzed to determine the LOS for the peak time periods and analysis scenarios listed below. The standard CCTALOS methodology was used for the analysis, and compared all computations to the City's LOS standard (LOS D, Volume/Capacity Ratio = 0.84). A project impact was identified for any condition where the base case (current or cumulative) was less than V/C=0.84 and the base + project case V/C is greater than the standard 0.84.

The following time periods are addressed in this traffic analysis for the EIR:

- AM peak period from 7:00 a.m. to 9:00 a.m., and
- PM peak period from 5:00 p.m. to 7:00 p.m.

Analysis Scenarios

The traffic impact analysis has been conducted for the weekday AM and PM peak hours for the following scenarios:

- Existing Conditions (2008)
- Existing Conditions plus proposed project (2008)
- Year 2018 Cumulative Conditions
- Year 2018 Cumulative Conditions plus proposed project

The traffic impacts have been evaluated by comparing the without and with project traffic scenarios for two different target years, 2008 and 2018.

Project-Related Traffic

Project Travel Demand Analysis

Project travel demand refers to the total net traffic generated by the proposed project, which is determined as the difference between traffic that would be generated by the proposed land uses and traffic generated by existing land uses that would be replaced or added to. This subsection describes the

trip generation and distribution characteristics of the proposed project. The analyses have been conducted for weekday AM and PM peak hour traffic conditions and comparisons are presented both with and without the proposed project.

Project Trip Generation

Table 4.4-4 (Existing and Anticipated Trip Generation) shows the vehicle trip generation due to implementation of the proposed project for the weekday AM and PM peak hours. The number of project trips associated with the proposed land uses assumed for the project were estimated based upon rates identified in the Trip Generation, 7th Edition, 2003, published by the Institute of Transportation Engineers (ITE).

The ITE AM and PM peak hour trip generation rates for the potential future and existing land uses are also listed in Table 4.4-4. The estimated net weekday peak hour trip generation for the DVC Plaza Area site is 109 inbound trips and 171 outbound trips during the AM peak hour, and 372 inbound trips and 338 outbound trips during the PM peak hour. The estimated net weekday peak hour trip generation for the Hookston Station Area site is 21 inbound trips and 3 outbound trips during the AM peak hour, and 3 inbound trips and 25 outbound trips during the PM peak hour.

The methodology used in this report does not assume trip reductions for transit usage or other travel demand management (TDM) strategies. A 35 percent reduction in trip generation for the DVC Plaza site was assumed for pass-by capture due to the proposed retail/commercial land uses. Therefore, the results presented are conservative. As discussed in the Existing Transit Services section, the proposed project area is not directly served by BART. However, connections are available to trains at the Pleasant Hill BART station via the County Connection Bus Routes #114 and #116, which travels along streets adjacent to both areas of the proposed project.

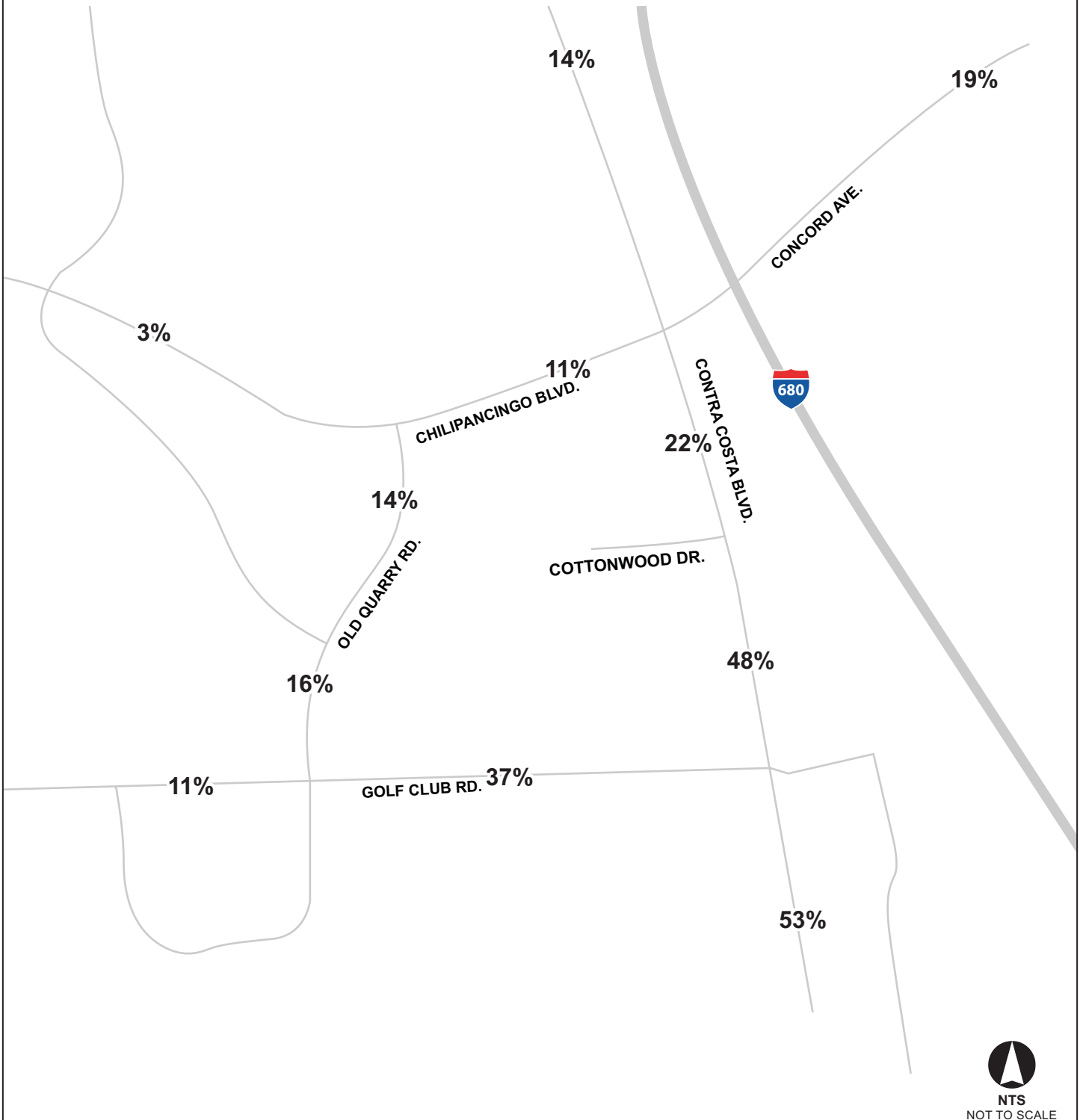
Project Trip Distribution and Traffic Volumes

Vehicle trips generated by the proposed project were assigned to the local roadway network and study intersections based upon the distribution percentages of the existing turning movements since they include traffic from existing uses present on both sites. Due to the nature of the access to the DVC Plaza Area some assumptions were made regarding the individual driveway assignment. Based on the breakout of existing retail space within the site it was assumed that 36 percent of the project traffic accessing the site from Contra Costa Boulevard would do so through individual driveway access points with the balance using the Cottonwood Drive entrance. For inbound project traffic arriving from south of Golf Club Road it was assumed that two-thirds of the traffic would turn left at the intersection of Contra Costa Boulevard and Golf Club Road in order to be able to make the turn at the signal light. This results in a conservative assessment of traffic conditions at the intersection of Contra Costa Boulevard and Golf Club Road. The overall project trip distribution percentages for both the DVC Plaza and Hookston Station areas are shown in Figures 4.4-8 (DVC Plaza Project Traffic Distribution) and 4.4-9 (Hookston Station Project Traffic Distribution). Figures 4.4-10 (DVC Plaza Project Traffic Volumes) and 4.4-11 (Hookston Station Project Traffic Volumes) shown the overall traffic volumes that would occur at the study intersections due to the land uses anticipated under the proposed project.

Table 4.4-4 Existing and Anticipated Trip Generation

ITE Code	Land Use	No. of SF or DU	Total Daily Trip Generation	ITE Pass-By Capture %	External Daily Trip Generation	Daily Peak Direction Total	Total AM Peak Trip Generation	External AM Peak Trip Generation	AM Peak Inbound	AM Peak Outbound	Total PM Peak Trip Generation	External PM Peak Trip Generation	PM Peak Inbound	PM Peak Outbound
ANTICIPATED TRIP GENERATION BASED ON MAXIMUM DEVELOPMENT POTENTIAL														
DVC Plaza Area														
220	Apartment (Multi-Family) (DU)	300	1,953	N/A	1,953	977	151	151	30	121	183	183	119	64
820	Shopping Center (SF)	449,766	18,046	25.24%	13,491	9,023	386	288	176	112	1,689	1,263	606	657
	Totals		*19,999*		*15,444*	*10,000*	*537*	*439*	*206*	*233*	*1,871*	*1,445*	*725*	*720*
Hookston Station Area														
110	General Light Industrial (SF)	171,800	1,181		1,181	591	113	113	100	14	82	82	10	72
	Totals		*1,181*	*0*	*1,181*	*591*	*113*	*113*	*100*	*14*	*82*	*82*	*10*	*72*
NET INCREASE IN TRIP GENERATION UNDER THE PROPOSED PROJECT														
DVC Plaza Area														
220	Apartment (Multi-Family) (DU)	300	1,953	N/A	1,953	977	151	151	30	121	183	183	119	64
820	Shopping Center (SF)	147,463	8,741	34.88%	5,693	4,371	198	129	78	50	809	527	253	274
	Totals		*10,695*		*7,646*	*5,347*	*348*	*279*	*109*	*171*	*992*	*709*	*372*	*338*
Hookston Station Area														
110	General Light Industrial (SF)	19,954	149	0	149	75	24	24	21	3	29	29	3	25
	Totals		*149*	*0*	*149*	*75*	*24*	*24*	*21*	*3*	*29*	*29*	*3*	*25*

SOURCE: Trip Generation, Institute of Transportation Engineers, 7th Edition, 2003.



Source: PBS&J, 2008.

FIGURE **4.4-8**

DVC Plaza Project Traffic Distribution

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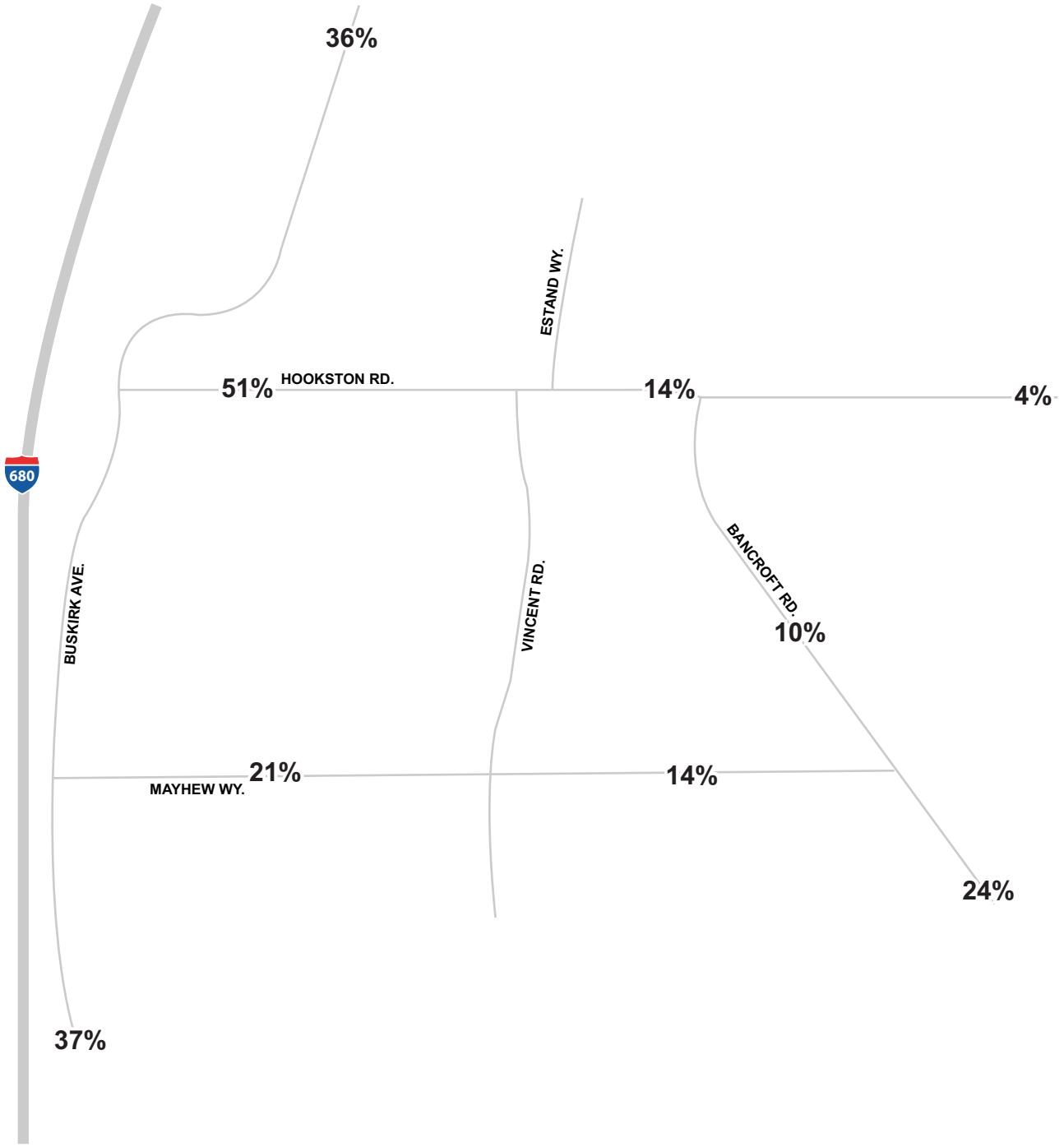
Pleasant Hill Commons

03030 | JCS | 08



NTS
NOT TO SCALE

Source: PBS&J, 2008.

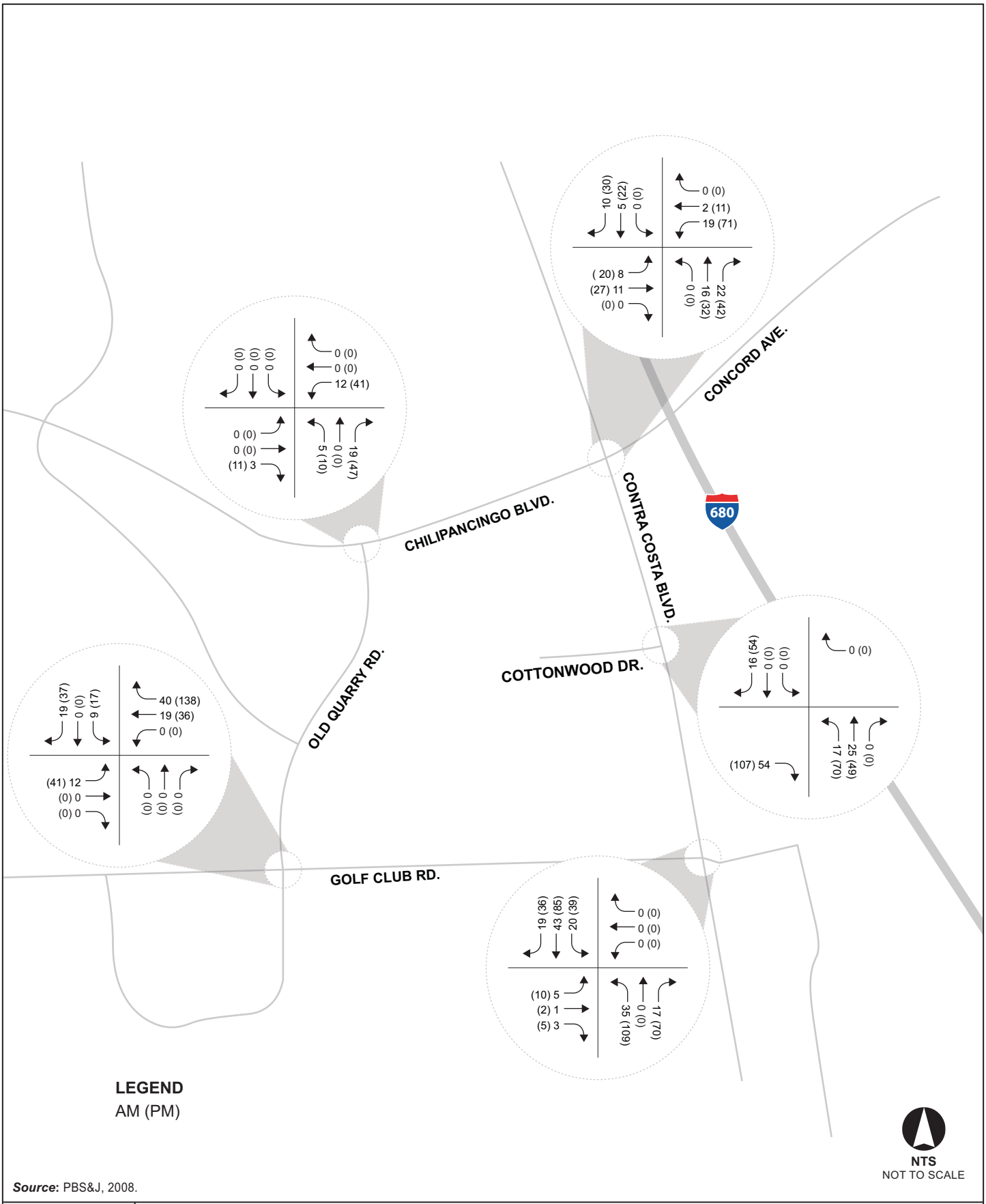
FIGURE **4.4-9**

Hookston Station Project Traffic Distribution

100000662

Pleasant Hill Commons

03030 | JCS | 08



Source: PBS&J, 2008.

FIGURE **4.4-10**

DVC Plaza Project Traffic Volumes

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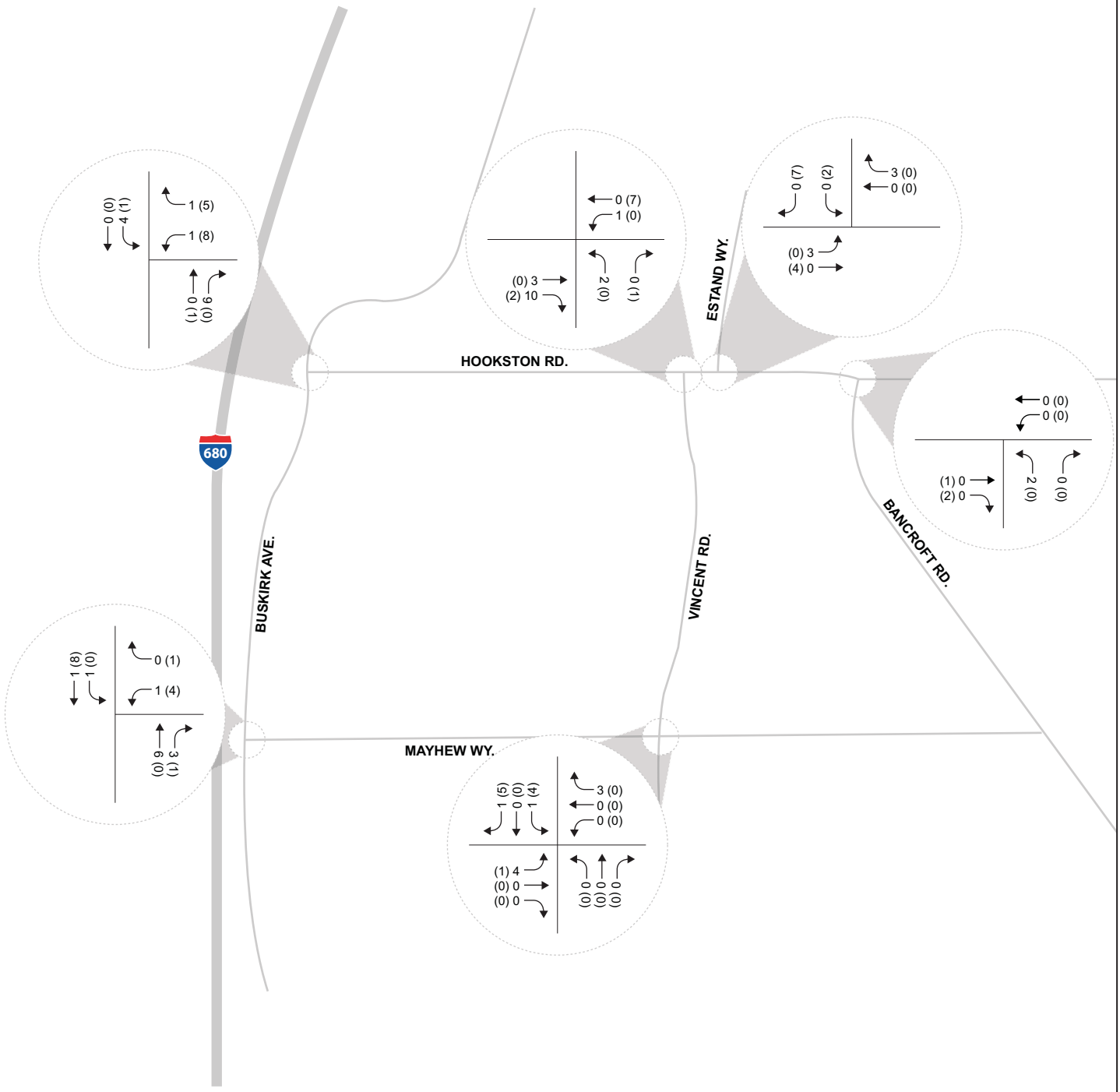
Pleasant Hill Commons

03030 | JCS | 08



LEGEND
AM (PM)

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-11**
Hookston Station Project Traffic Volumes

100000662

Pleasant Hill Commons

03030 | JCS | 08

Existing plus Project Conditions

This section documents the existing plus project (2008) traffic conditions with the addition of project-related traffic to the surrounding street system.

Figures 4.4-12 (2008 DVC Plaza Existing + Project Traffic Volumes) and 4.4-13 (2008 Hookston Station Existing + Project Traffic Volumes) illustrate the AM and PM existing plus project peak hour volumes for the study intersections for the DVC Plaza and Hookston Station sites, respectively. Table 4.4-5 (Existing Plus Project Conditions—Intersection Level of Service) illustrates the existing plus project intersection LOS conditions. Appendix E includes the analysis worksheets for all intersections under existing plus project conditions. As shown in the table, all intersections are expected to operate at LOS D or better (LOS C or better for unsignalized intersections) under the existing plus project condition except the following:

- Contra Costa Boulevard/Chilpancingo Parkway (Signalized)
- Buskirk Avenue/Mayhew Way (Two-way stop control)
- Hookston Road/Vincent Road (Two-way stop control)

Table 4.4-5 2008 Existing Plus Project Conditions—Intersection Level of Service

		Existing (No Project)				*Existing (Plus Project)*			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
Intersection	*Type of Control*	*V/C ratio/ Delay[a]*	*LOS*	*V/C ratio/ Delay[a]*	*LOS*	*V/C ratio/ Delay[a]*	*LOS*	*V/C ratio/ Delay[a]*	*LOS*
Chilpancingo Parkway/Old Quarry Road	Signal	0.38	A	0.32	B	0.39	A	0.34	B
Contra Costa Boulevard/Chilpancingo Parkway	Signal	0.66	C	0.97	E	0.79	D	1.04	E
Contra Costa Boulevard/Cottonwood Drive	Two-Way Stop	10.1	A	11.6	B	10.2	A	11.7	B
Contra Costa Boulevard/Golf Club Road	Signal	0.72	C	0.66	C	0.82	C	1.00	D
Golf Club Road/Old Quarry Road	Signal	0.46	B	0.27	C	0.43	B	0.38	C
Buskirk Avenue/Mayhew Way	Two-Way Stop	244.1	F	125.1	F	202.5	F	137.6	F
Buskirk Avenue/Hookston Road	Two-Way Stop	21.7	C	23.2	C	22.3	C	24.0	C
Hookston Road/Vincent Road	Two-Way Stop	24.7	C	22.7	C	25.7	D	22.8	C
Hookston Road/Estand Way	Two-Way Stop	14.8	B	16.4	C	14.8	B	16.6	C
Hookston Road/Bancroft Road	Signal	0.52	A	0.44	A	0.52	A	0.44	A
Vincent Road/Mayhew Way	Two-Way Stop	12.6	B	11.7	B	13.0	A	11.7	B

SOURCE: Delay and LOS based on HCM methodologies using the Synchro (v. 7) software, PBS&J, 2008.

[a] For unsignalized intersections (in seconds) worst approach delay and LOS shown.

LEGEND

36 AM Peak

(54) PM Peak

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

PBS&J

FIGURE **4.4-12**

2008 DVC Plaza Existing + Project Traffic Volumes

100000662

Pleasant Hill Commons

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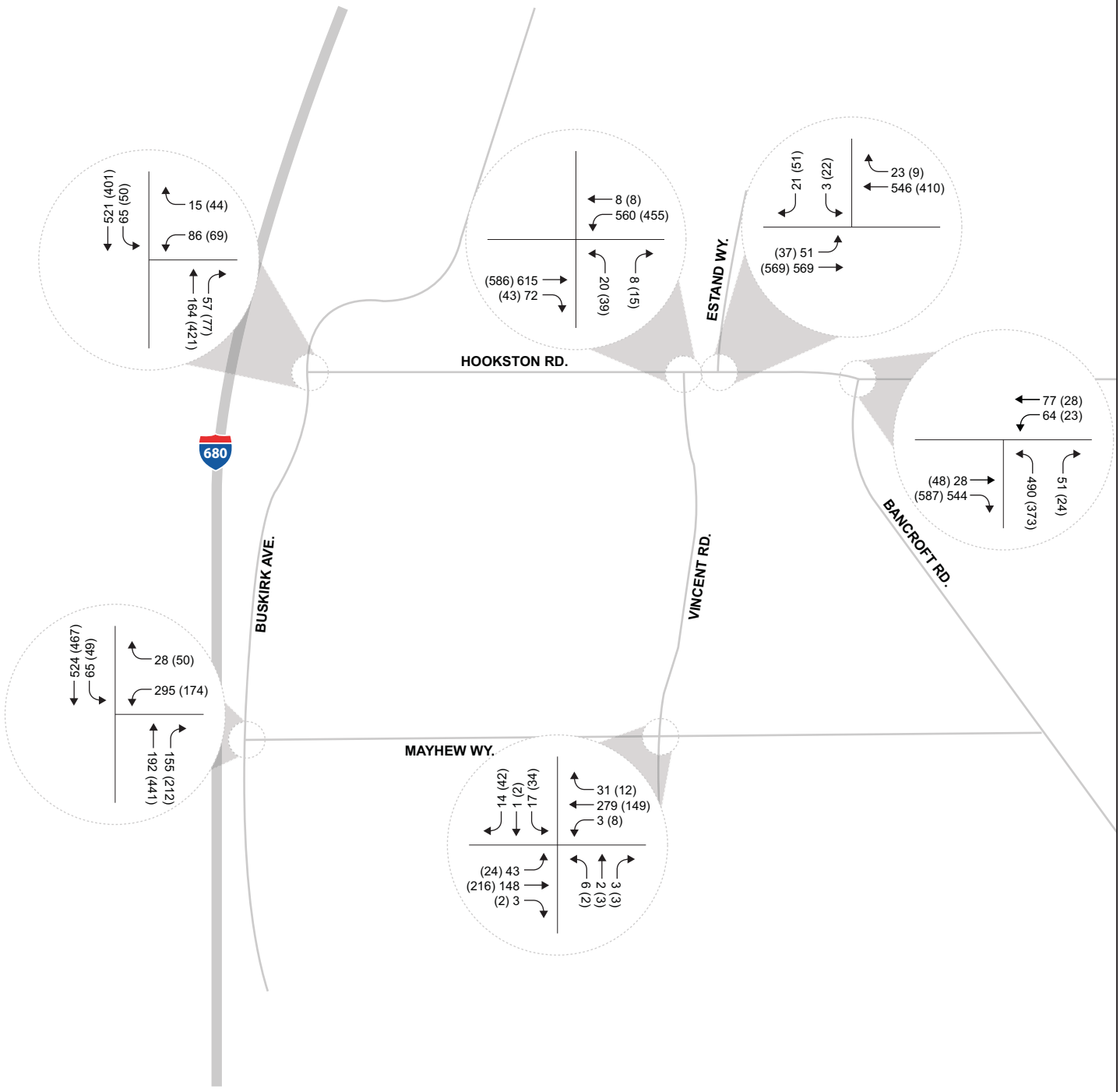

LEGEND
36 AM PEAK
(54) PM PEAK

NTS
NOT TO SCALE

Source: PBS&J, 2008.

FIGURE **4.4-13**

2008 Hookston Station Existing + Project Traffic Volumes

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Anticipated Project Buildout (2018) Without Project Condition

This section documents the future (2018) traffic conditions with and without the addition of project-related traffic to the surrounding street system.

Future Traffic Volumes Forecasts

Traffic volumes associated with cumulative scenarios were calculated by projecting the existing volumes to the 2018 horizon year using growth factors. These factors were developed for individual intersection approaches based upon forecasts from the CCTA Travel Forecasting Model. The 2018 with project traffic is composed of 2018 background traffic plus the project only traffic which was generated based on the trip generation, trip distribution, and traffic assignment methodology. Growth rates for the 10-year period from 2008-2018 were developed for all roadways feeding into a study intersection wherever data was available except for those approaches that were either of one of the sites (i.e., Cottonwood Drive) or where the approach entered a retail parcel (as a driveway) that was fully developed. Wherever calculated growth rates were determined to be less than one percent per year they were increased to a minimum of one percent per year. Table 4.4-6 (Calculated Growth Rates) shows the growth rates used to extrapolate the existing turning movement volumes.

Table 4.4-6 Calculated Growth Rates

Street	*2000 CCTA Model Volume*	*2030 CCTA Model Volume*	*Calculated Growth Rate*
DVC Plaza			
Chilpancingo Parkway	8,636	12,405	1.46%
Contra Costa Boulevard	12,683	21,434	2.3%
Old Quarry Road	12,700	17,330	1.22%
Golf Club Road	3,870	9,052	4.46%
Hookston Station			
Buskirk Avenue	21,988	25,503	1.0% (0.53%)
Hookston Road	9,491	10,585	1.0% (0.38%)
Mayhew Way	1,452	2,884	3.3%
Bancroft Road	9,757	10,986	1.0% (0.4%)

SOURCE: CCTA 2000 and 2030 Decennial Model Update Volume Plots, CCTA website.

Cumulative Analysis—Project Buildout (2018) Without Project Intersection Conditions

The anticipated project buildout (2018) without project intersection volumes are composed of the existing traffic volumes extrapolated using the growth rates shown in Table 4.4-5, plus the with project only volumes. Figures 4.4-14 (2018 DVC Plaza Cumulative Traffic Volumes) and 4.4-15 (2018 Hookston Station Cumulative Traffic Volumes) illustrate the AM and PM cumulative peak hour volumes for the study intersections for the DVC Plaza and Hookston Station sites, respectively. Table 4.4-7 (Cumulative

LEGEND

36 AM Peak

(54) PM Peak

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-14**

2018 DVC Plaza Cumulative Traffic Volumes

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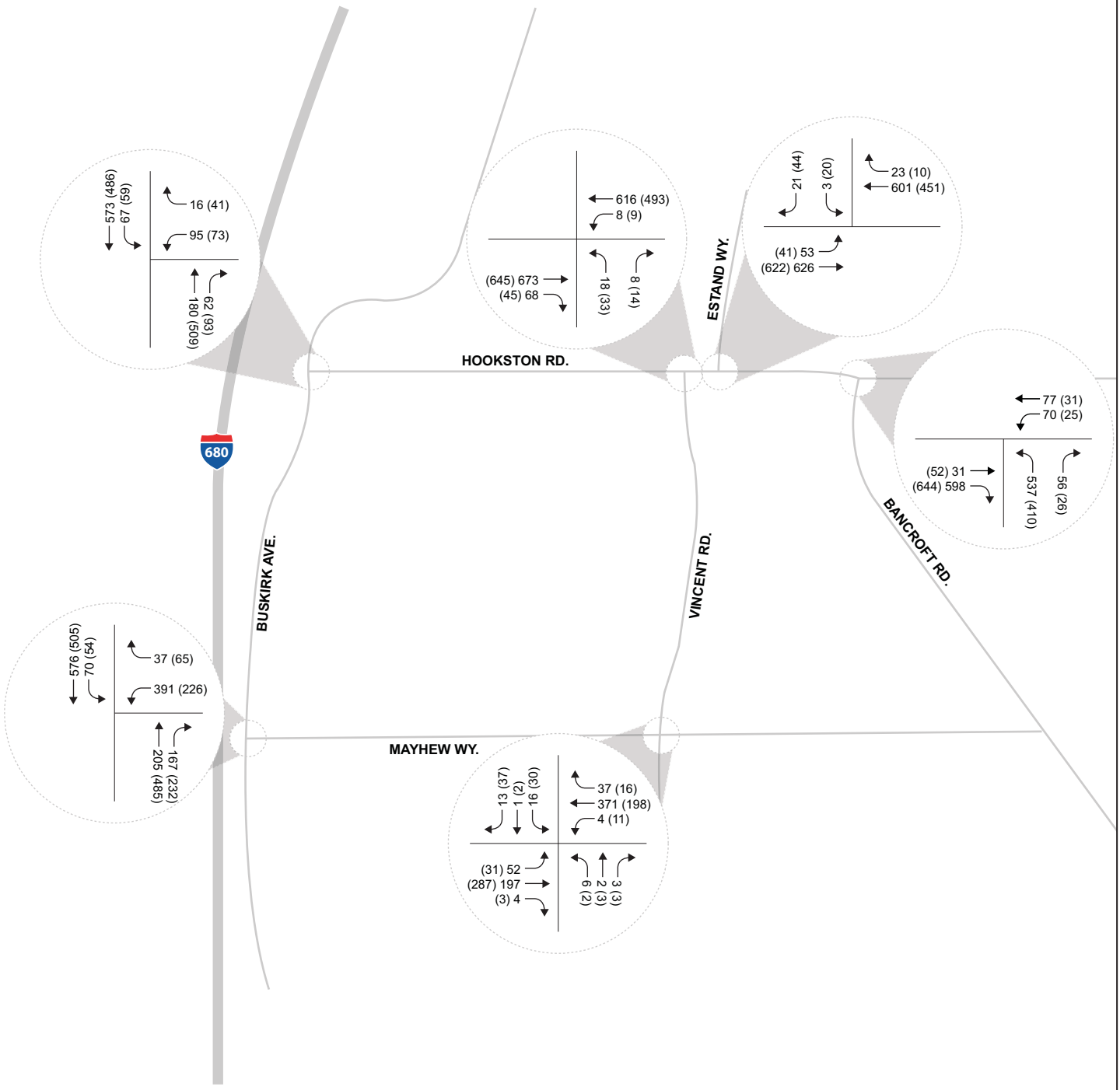

LEGEND
36 AM PEAK
(54) PM PEAK

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-15**
2018 Hookston Station Cumulative Traffic Volumes

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Table 4.4-7 2018 Cumulative without Project Conditions— Intersection Levels of Service

Intersection	Type of Control	AM Peak Hour		PM Peak Hour	
		V/C ratio/ Delay[a]	LOS	V/C ratio/ Delay[a]	LOS
Chilpancingo Parkway and Old Quarry Road	Signal	0.42	B	0.37	B
Contra Costa Boulevard/Chilpancingo Parkway	Signal	0.82	C	1.07	E
Contra Costa Boulevard/Cottonwood Drive	Two-Way Stop	10.1	B	11.3	A
Contra Costa Boulevard/Golf Club Road	Signal	0.74	C	0.87	D
Golf Club Road/Old Quarry Road	Signal	0.55	C	0.42	B
Buskirk Avenue/Mayhew Way	Two-Way Stop	486.3	F	370.4	F
Buskirk Avenue/Hookston Road	Two-Way Stop	26.8	D	38.0	E
Hookston Road/Vincent Road	Two-Way Stop	29.2	D	26.5	D
Hookston Road/Estand Way	Two-Way Stop	15.7	C	18.8	C
Hookston Road/Bancroft Road	Signal	0.56	A	0.48	A
Vincent Road/Mayhew Way	Two-Way Stop	15.3	C	13.2	B

SOURCE: Delay and LOS based on HCM methodologies using the Synchro (v. 7) software. PBS&J, 2008.

[a]. For unsignalized intersections (in seconds) worst approach delay and LOS shown.

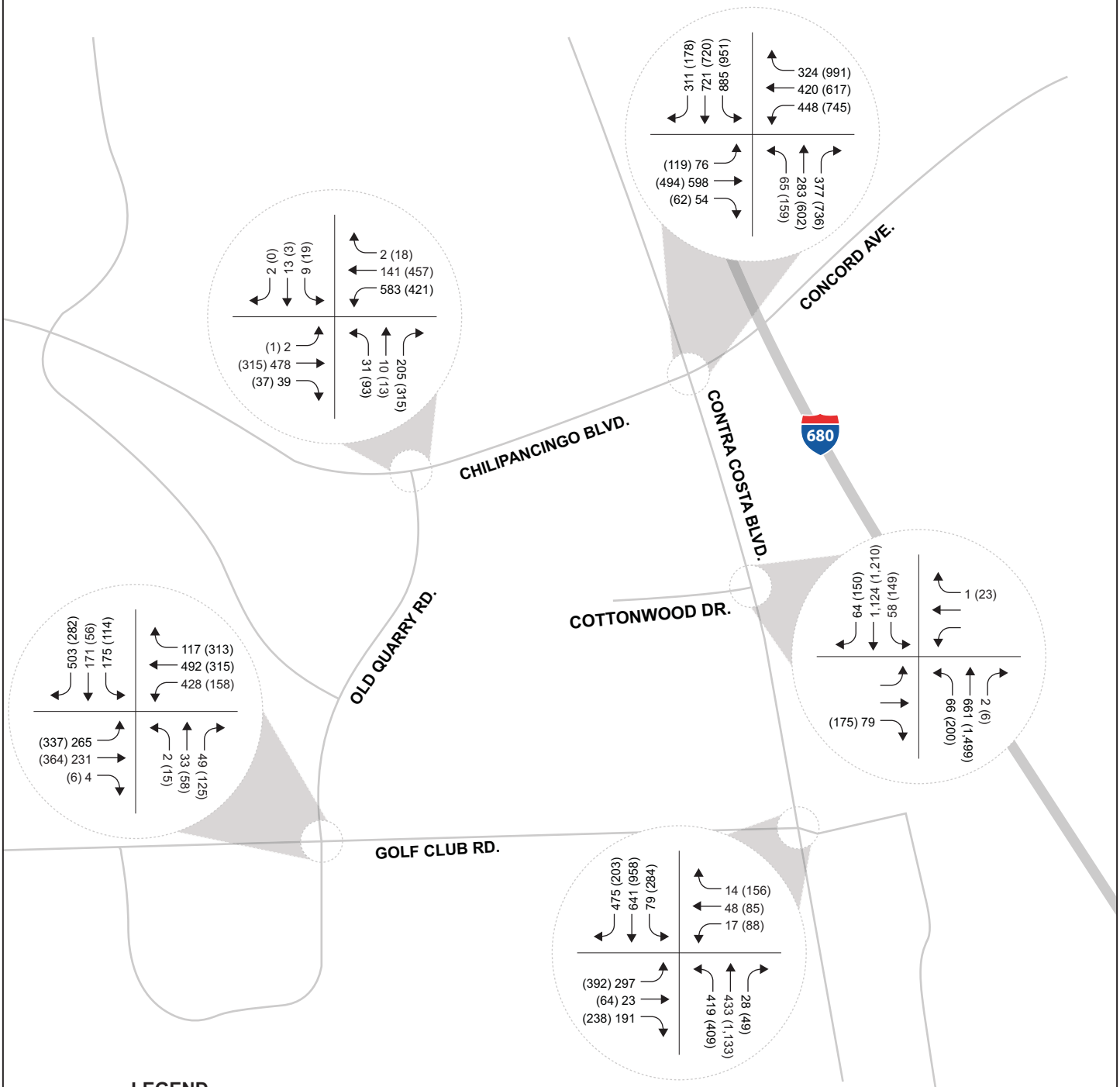
without Project Conditions—Intersection Levels of Service) illustrates the cumulative without project intersection LOS conditions. Appendix E includes the analysis worksheets for all intersections under 2018 without project conditions. As shown in the table, all intersections are expected to operate at LOS D or better (LOS C or better for unsignalized intersections) under the 2018 cumulative without project condition except the following:

- Contra Costa Boulevard/Chilpancingo Parkway (Signalized)
- Buskirk Avenue/Mayhew Way (Two-way stop control)
- Buskirk Avenue/Hookston Road (Two-way stop control)
- Hookston Road/Vincent Road (Two-way stop control)

Cumulative plus Project—Anticipated Project Buildout (2018) with Project Conditions

The cumulative plus project intersection volumes are composed of the 2018 cumulative volumes plus the project only volumes. Figures 4.4-16 (2018 DVC Plaza Cumulative + Project Traffic Volumes) and 4.4-17 (2018 Hookston Station Cumulative + Project Traffic Volumes) illustrate the AM and PM cumulative plus project peak hour volumes for the study intersections for the DVC Plaza and Hookston Station sites, respectively. Table 4.4-8 (2018 Cumulative Plus Project Conditions—Intersection Level of Service) illustrates the cumulative plus project intersection LOS conditions. Appendix E includes the analysis worksheets for all intersections under 2018 Without Project conditions. As shown in the table, all intersections are expected to operate at LOS D or better (LOS C or better for unsignalized intersections) under the 2018 cumulative with project condition except the following:

- Contra Costa Boulevard/Chilpancingo Parkway (Signalized)
- Buskirk Avenue/Mayhew Way (Two-way stop control)
- Buskirk Avenue/Hookston Road (Two-way stop control)



LEGEND

36 AM Peak

(54) PM Peak

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-16**

2018 DVC Plaza Cumulative + Project Traffic Volumes

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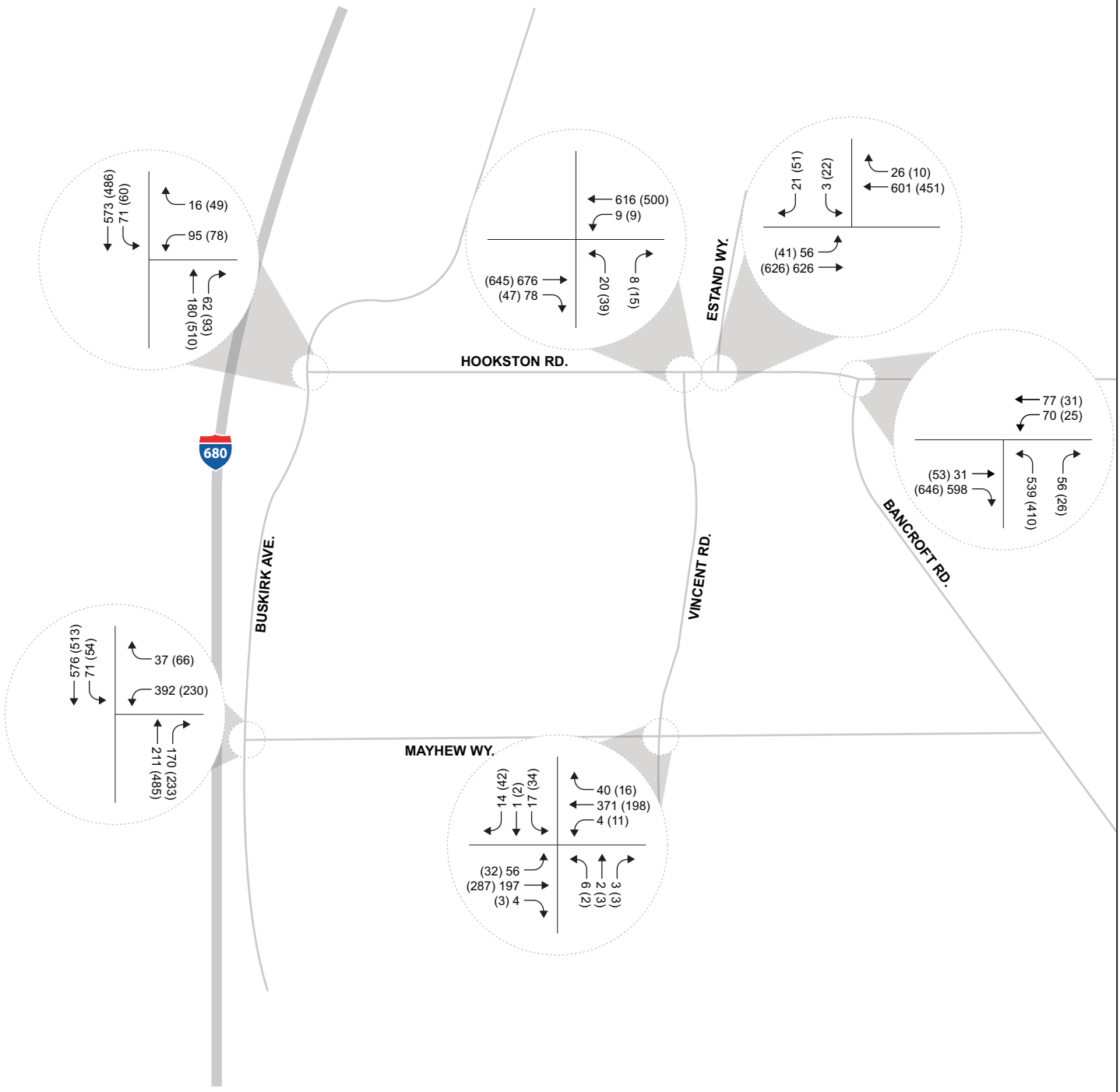

LEGEND
36 AM PEAK
(54) PM PEAK

NTS
NOT TO SCALE

***Source*:** PBS&J, 2008.

FIGURE **4.4-17**

2018 Hookston Station Cumulative + Project Traffic Volumes

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Table 4.4-8 2018 Cumulative Plus Project Conditions—Intersection Level of Service

Intersection	Traffic Control	Cumulative (No Project)				Cumulative (Plus Project)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		V/C Ratio/ Delay[a]	LOS	V/C Ratio/ Delay[a]	LOS	V/C Ratio/ Delay[a]	LOS	V/C Ratio/ Delay[a]	LOS
Chilpancingo Parkway and Old Quarry Road	Signal	0.42	B	0.37	B	0.42	B	0.39	B
Contra Costa Boulevard/Chilpancingo Parkway	Signal	0.82	C	1.07	E	0.84	C	1.17	E
Contra Costa Boulevard/Cottonwood Drive	Two-Way Stop	10.1	B	11.3	A	10.1	B	13.0	B
Contra Costa Boulevard/Golf Club Road	Signal	0.74	C	0.87	D	0.80	C	0.91	D
Golf Club Road/Old Quarry Road	Signal	0.55	C	0.42	B	0.55	C	0.51	C
Buskirk Avenue/Mayhew Way	Two-Way Stop	486.3	F	370.4	F	486.3	F	392.2	F
Buskirk Avenue/Hookston Road	Two-Way Stop	26.8	D	38.0	E	26.8	D	40.9	E
Hookston Road/Vincent Road	Two-Way Stop	29.2	D	26.5	D	29.2	D	28.3	D
Hookston Road/Estand Way	Two-Way Stop	15.7	C	18.8	C	15.7	C	18.5	C
Hookston Road/Bancroft Road	Signal	0.56	A	0.48	A	0.56	A	0.48	A
Vincent Road/Mayhew Way	Two-Way Stop	15.3	C	13.2	B	15.3	C	13.1	B

SOURCE: Delay and LOS based on HCM methodologies using the Synchro (v. 7) software. PBS&J, 2008.

[a] For unsignalized intersections (in seconds) worst approach delay and LOS shown.

- Hookston Road/Vincent Road (Two-way stop control)
- Contra Costa Boulevard/Golf Club Road (Two-way stop control)

Thresholds of Significance

Traffic impacts are identified if the proposed project would result in a significant change in traffic conditions on a roadway or at an intersection. A significant impact is normally defined when project-related traffic would cause level of service to deteriorate to below the minimum acceptable level by a measurable amount. A cumulative impact may also be significant if the location is already below the minimum acceptable level or forecast without the project to be below the minimum acceptable level and project related traffic causes a further decline.

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the DVC Plaza and Hookston Station Amendments to the Pleasant Hill Commons Redevelopment Plan may have a significant adverse impact on transportation and traffic if it would result in any of the following:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)

It should be noted that potential impacts with respect to air traffic patterns and parking capacity were determined to be less than significant and are discussed in the IS/NOP; therefore, no further analysis is included within this section. For a discussion of these impacts, please refer to Appendix A (IS/NOP).

The criteria used to determine whether the proposed project would cause any significant impacts were obtained from the Pleasant Hill General Plan Growth Management Element. For the purposes of this EIR, a significant impact would occur:

- When the LOS drops below LOS D (V/C > 0.84) for a signalized intersection;
- When the minimum standard for unsignalized intersections drops below LOS C, as indicated by the City of Pleasant Hill;
- When the LOS drops below LOS D for a freeway ramp junction; or
- If increased demand for transit, bicycle, or pedestrian services goes beyond existing and/or planned capacity.

Unsignalized intersection analysis follows the City's criteria to use the HCM unsignalized analysis methodology. HCM indicates that level of service for unsignalized intersection is based upon the control delay for the poorest movement of the intersection, which is assessed for those traffic movements that are stopped or must yield to through traffic. Some movements, including cross traffic on the minor street or left turns onto the major street, can be subject to long delays, however through traffic and right turns from the major street would not experience any delays at stopped intersections. When delay for cross traffic is severe (LOS E or F), the intersection should be evaluated further for possible improvement with traffic signals. In some cases, this analysis determines that the delay is being experienced by a very low number of vehicles and traffic signals are not warranted. In other cases, the number of stopped vehicles is substantial and traffic signals may be justified as a mitigation measure.

Threshold	Would the proposed project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Impact 4.4-1 **Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. Implementation of mitigation measures would reduce this impact to a less-than-significant level. However, due to the lack of right of way (ROW) and the location of one intersection within the jurisdiction of another public agency, implementation of mitigation can not be guaranteed, and this impact would be considered *significant and unavoidable*.**

As stated above, nine intersections are currently operating at LOS D or better (LOS C for unsignalized intersections), while under the existing plus project conditions, eight intersections would operate at

acceptable levels of service. The three intersections that would operate at LOS D or worse under the existing plus project conditions include:

- Contra Costa Boulevard/Chilpancingo Parkway (Concord Avenue)
- Buskirk Avenue/Mayhew Way
- Hookston Road/Vincent Road

Further, under Year 2018 without project conditions, the intersection of Buskirk Avenue/Hookston Road would also operate at LOS D or worse. With the addition of project conditions under Year 2018 conditions, the intersection of Contra Costa Boulevard/Golf Club Road would also experience a LOS of E or worse (LOS D or worse for unsignalized intersections). Therefore, with implementation of the proposed project and inclusive of cumulative growth conditions in the area, five of the study intersections would operate at unacceptable levels of service, including:

- Contra Costa Boulevard /Chilpancingo Parkway (Concord Avenue)
- Buskirk Avenue/Mayhew Way
- Hookston Road/Vincent Road
- Buskirk Avenue/Hookston Road
- Contra Costa Boulevard/Golf Club Road

With respect to the intersections of Buskirk Avenue/Mayhew Way and Hookston Road/Vincent Road and as shown in Table 4.4-8, the proposed project's contribution is so small and because traffic conditions would remain the same whether or not the project is implemented, the project's contribution would be considered insignificant. Therefore, the impact of the proposed project on these two intersections is considered less than significant.

With respect to the other three intersections and as noted above, the CCTA has already identified, as part of its Seven-Year Capital Improvement Program (CIP Program), necessary improvement and/or further study of three of the aforementioned intersections that would operate at unacceptable levels of services. With implementation of the improvements that are already planned, traffic operations at two of the three intersections, with the exception of Contra Costa Boulevard/Chilpancingo Parkway (Concord Avenue), would improve to LOS D or better. As the improvements are already planned and would be implemented prior to the anticipated buildout of the proposed project, the potential impacts with respect to the following intersections would be considered less than significant:

- **Buskirk Avenue/Hookston Road** would improve to LOS A in both the AM and PM peak hour
- **Contra Costa Boulevard/Golf Club Road** would improve to LOS C in both the AM and PM peak hour

At the intersection of Contra Costa Boulevard at Chilpancingo Parkway (Concord Avenue), the CCTA has also identified the need to improve traffic operations at this intersection. As part of their CIP Program, the CCTA will evaluate the possibility of the installation of an urban diamond at this intersection. However, no physical improvements are currently proposed for this intersection. Further, there is not sufficient ROW available to make any additional intersection improvements, with the possible exception of an urban diamond, which could potentially mitigate this impact. In addition, due to the proximity of the intersection to I-680 almost any improvement would encroach upon Caltrans ROW. Therefore, in order for mitigation to be implemented at this intersection, the improvement must be also

permitted by a jurisdiction other than the City of Pleasant Hill, specifically Caltrans. If such permission is not given, the traffic impact would remain unmitigated. Coupled with the lack of current plans for improvement of the intersection and feasibility of future mitigation, the impact of the proposed project is considered to be ***significant and unavoidable***.

Threshold	Would the proposed project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Impact 4.4-2 **Implementation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area. This impact is considered to be *significant and unavoidable*.**

The Contra Costa Transportation Authority is designated as the Congestion Management Agency (CMA) to oversee the Contra Costa County CMP. The only route of significance within the study area is Contra Costa Boulevard. The following two intersections are the only CMP intersections within the study area:

- Contra Costa Boulevard/Chilpancingo Parkway (Concord Avenue)
- Contra Costa Boulevard/Golf Club Road

Both CMP intersections are signalized. As discussed above in the Thresholds of Significance, a traffic-related project contribution is considered significant for the City of Pleasant Hill signalized intersections if LOS degrades to D or worse, which is more stringent than the CMP criteria. Further, as stated in Impact 4.4-1, the two CMP intersections within the study area would experience poor levels of service due to future conditions, inclusive of the proposed project. The intersection of Contra Costa Boulevard and Golf Club Road is already planned for improvement and would experience LOS D or better under future conditions with the proposed project. However, no current plans exist for the improvement of the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Avenue), and future improvement of the intersection beyond the construction of an urban diamond interchange appears infeasible. As a result, improvement of this intersection cannot be ensured by the City, and this impact would be considered ***significant and unavoidable***.

Threshold	Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Impact 4.4-3 **The proposed project would not increase hazards due to a design feature or incompatible uses. Impacts would be *less than significant*.**

it is anticipated that proposed development within either the DVC Plaza Area or the Hookston Station Area would be designed to use the existing network of regional and local roadways located within the vicinity of the study area. Currently proposed CIP projects such as the Buskirk Avenue Improvements Phase II, including re-alignment of Buskirk Avenue, that are already planned by the City would actually

enhance safety and reduce hazards. The other recommended improvements are designed to reduce potential hazards due to congestion. As such, this impact would be ***less than significant***.

Threshold	Would the project result in inadequate emergency access?

Impact 4.4-4 **The proposed project could result in inadequate emergency access; however, adherence to applicable local and state regulations would ensure impacts remain *less than significant*.**

Any development proposed within either the DVC Plaza or Hookston Station areas would be required to meet all applicable local and state regulatory standards with regard to the provision of adequate emergency access. Emergency access within the proposed amended areas of the Redevelopment Plan would be addressed as individual projects are proposed within the project area. Adherence to applicable local and state regulatory standards would ensure that this impact remains ***less than significant***.

Threshold	Would the proposed project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Impact 4.4-5 **The proposed project could conflict with adopted policies, plans, or programs supporting alternative transportation. This impact is considered to be *less than significant*.**

As individual projects are proposed within the DVC Plaza and Hookston Station areas, each project would be required to comply with City of Pleasant Hill Municipal Code requirements with respect to the provision of bus stops, bicycle racks, and other alternative transportation considerations. Further and as stated above, numerous bus routes currently provide service to the project area and would continue to operate in the foreseeable future. The increased demand for transit services due to implementation of the project is anticipated to be within the existing capacity of the transit providers. For example, the existing bus stop located on Buskirk Avenue is located in such a manner as to conveniently serve the Hookston Station area while keeping the buses from unnecessarily affecting traffic on Monument Boulevard; as such, it is the most complementary location for the bus stop. Because the project's contribution is considered incremental with respect to the existing transit network, the ability of the transit system to provide service to both the project area and the City would not be changed whether or not the project is implemented. Therefore, this impact is considered ***less than significant***.

Impact 4.4-6 **The proposed project could increase bicycle and pedestrian circulation needs. However, the project's contribution would be *less than significant*.**

As stated above, there are sufficient pedestrian facilities, as well as a bicycle path along the Contra Costa Canal, which provide access to the DVC Plaza Area. The increased bicycle and pedestrian circulation needs due to the potential implementation of the project is anticipated to be within the existing capacity of the existing facilities. Due to the relatively small size of the proposed project compared to the level of development within the City, the ability of the existing system to provide adequate circulation would

essentially not be changed whether or not the project is implemented. Therefore, the impact would be considered ***less than significant***.

4.4.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts. This cumulative impact analysis considers development of the proposed project, in conjunction with other development in the City of Pleasant Hill, unless otherwise specified. This analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Pleasant Hill General Plan.

The traffic analysis provided in this section considers trips generated by cumulative development in its development of future baseline conditions. Therefore, the cumulative impact analysis is incorporated into the Year 2018 analyses presented in Section 4.4-3. As identified in Impact 4.1-1, because implementation of the proposed project would contribute to significant impacts at the study area intersections, and because implementation of improvement to the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Avenue) cannot be guaranteed, the proposed project would have a considerable contribution to cumulative impacts. Cumulative traffic impacts would be *significant and unavoidable*.

4.4.5 References

City of Pleasant Hill, *General Plan*, 2003.

_____, *Capital Improvement Program*, 2007.

Contra Costa Transportation Authority, *Technical Procedures*, September 2007.

_____, *Capital Improvement Program*, 2003.

Institute of Transportation Engineers, *Trip Generation*, 7th Edition, 2003.

Transportation Research Board, *Highway Capacity Manual*, Fourth Edition, Updated 2000.

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CHAPTER 5 Alternatives to the Proposed Project

5.1 INTRODUCTION

The following discussion evaluates alternatives to the proposed amendments to the Pleasant Hill Commons Redevelopment Plan and examines the potential environmental impacts associated with each alternative. Through comparison of these alternatives to the proposed project, the relative environmental advantages and disadvantages of each are weighed and analyzed. The *California Environmental Quality Act* (CEQA) Guidelines require that the range of alternatives addressed in an EIR be governed by a rule of reason. Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered (CEQA Guidelines Section 15126.6). Section 15126.6 of the CEQA Guidelines states that the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, other plans or regulatory limitations, and jurisdictional boundaries. The discussion of alternatives must focus on alternatives capable of either avoiding or substantially lessening any significant environmental effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives or would be more costly. The alternatives discussion should not consider alternatives whose implementation is remote or speculative, and the analysis need not be presented in the same level of detail as the assessment of the project.

As identified in Section 3.2 (Project Objectives), the overall objective of the proposed project is to promote, directly or indirectly, new development and the revitalization of existing land uses in the proposed project area, within the requirements and provisions of the Pleasant Hill General Plan, as adopted in 2003.

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. The analysis in this EIR indicates that the project would result in significant and unavoidable impacts with respect to the following:

- **Air Quality**
  - > Operation of the proposed project would exceed BAAQMD standards for ROG, NOX, and PM_{10} and would result in a projected air quality violation.
  - > Implementation of the proposed project could contribute to world-wide climate change through the contribution of greenhouse gases.
- **Noise**
  - > Construction of the proposed project could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels.

- **Traffic**
  - > Operation of the proposed project would result in the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Avenue) to operate at LOS E, an unacceptable LOS.
  - > Operation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area.

Thus, the alternatives examined herein represent alternatives that would minimize or avoid the significant air quality, noise, and traffic impacts associated with implementation of the proposed project, while still meeting most of the project objectives. As the lead agency, the Pleasant Hill Redevelopment Agency will make any final determination with respect to whether to proceed with the proposed project or whether to accept or reject any of the alternatives identified in this section.

Since the CEQA Guidelines require that an EIR state why an alternative is being rejected, a preliminary rationale for rejecting an alternative is presented, below, in this section. If the Agency and City ultimately reject an alternative, the rationale for the rejection will be presented in the findings that are required to be made before the Agency certifies the EIR and the City takes action on the project.

The alternatives may include a different type of project, modification of the proposed project, or suitable alternative project sites. However, the range of alternatives discussed in an EIR is governed by a "rule of reason" which CEQA Guidelines Section 15126.6(f) defines as:

> … set[ting] forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making.

5.2 ALTERNATIVES NOT EVALUATED IN THIS EIR

Under CEQA, the determination to analyze an off-site alternative is based on site suitability, economic viability, availability of infrastructure, general plan consistency, and whether the project applicant can reasonably acquire, control or have access to an alternative site (Section 15126.6(2)(A) of the CEQA Guidelines). An off-site alternative was not considered for this project because the specific sites were selected based on a survey and analysis of blight conditions in the City that most need redevelopment. Therefore, the analysis of an off-site alternative was considered but eliminated from further review.

5.3 ALTERNATIVES ANALYSIS

Three scenarios, representing a range of reasonable alternatives to the proposed project were selected for detailed analysis. The goal for evaluating any of these alternatives is to identify ways to avoid or lessen the significant environmental effects resulting from implementation of the proposed project, while attaining most of the project objectives. Alternatives selected for further analysis include the following:

- **Alternative 1a—No Development Alternative:** Under the No Development Alternative, the Pleasant Hill Commons Redevelopment Project area would not be expanded to include the project site, and no new development would occur. Both the DVC Plaza Area and Hookston Station Area would remain as is under existing conditions. Uses within the project area would continue to exist in their current condition with no plans for future expansion or changes of use.

  Methodology for Selection of Alternative 1a: This alternative evaluates the environmental effects of the No Development Alternative as discussed above, which allows the decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. Therefore, under Alternative 1a, the impacts of the proposed project are compared to the impacts that would occur if conditions were to remain in their current state.

- **Alternative 1b—No Action Alternative:** The No Action Alternative would assume future development occur under current land use and zoning designations consistent with available infrastructure and community services. Similar to No Development, the project site would not be included as part of the Pleasant Hill Commons Redevelopment Project Area.

  Methodology for Selection of Alternative 1b: This alternative evaluates the environmental effects of the No Action Alternative, which allows the decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. Therefore, under Alternative 1b, the impacts of the proposed project are compared to the impacts that would occur if the existing General Plan were implemented in the project area.

- **Alternative 2—DVC Plaza Only:** This alternative would contain the same project elements as the proposed project for the DVC Plaza, but would not include the Hookston Station portion of the project area. Therefore, the DVC Plaza property would be designated for retail and residential uses, the same as the proposed project. In general, this alternative would reduce the overall square feet (sf) of light industrial uses in the area.

  Methodology for Selection of Alternative 2: This alternative would result in approximately 19,954 fewer sf of light industrial uses within the project area, which would reduce some of the significant impacts of the proposed project.

- **Alternative 3—Hookston Station Only:** This alternative would include only the Hookston Station portion of the proposed project area within the Pleasant Hill Commons Redevelopment Area. The same project elements would be assumed for the Hookston Station Area; however, the DVC Plaza Area would not be included. Therefore, the Hookston Station Area would include additional light industrial uses, similar to the proposed project. In general, this alternative would reduce the overall square feet of commercial uses and number of residential units.

  Methodology for Selection of Alternative 3: This alternative would decrease commercial uses by 147,463 sf and residential uses by 300 units, this alternative would reduce some of the significant impacts of the proposed project.

- **Alternative 4—Reduced Density:** This alternative would add the DVC Plaza and Hookston Station areas to the Pleasant Hill Commons Redevelopment Project area, but future development would assume a floor area ratio (FAR) of 0.2. This would result in overall decrease in developable square footage over what was assumed under the proposed project. Specifically, this alternative would result in a reduction of 77,420 sf of retail space and 150 residential units within the DVC Plaza area and 65,946 sf of light industrial within the Hookston Station area. In comparison, the DVC Plaza and Hookston Station area would experience an overall net increase of 147,463 sf and 300 units, and 19,954 sf, respectively, under the proposed project.

Methodology for Selection of Alternative 4: This alternative would generate fewer vehicle trips, thereby reducing the severity of air quality, noise, and traffic impacts.

5.3.1 Alternative 1—No Project/Reasonably Foreseeable Development (Continuation of Existing General Plan)

Description

CEQA Guidelines require the analysis of a "no project" alternative (Section 15126.6(e)). This "no project" analysis must discuss the existing condition, as well as what would be reasonably expected to occur in the foreseeable future if the project was not approved. Since the Proposed Project is a development project, the following CEQA Guideline is directly applicable to the project (Section 15126.6(e)(3)(B)):

> If the project is…a development project on an identifiable property, the "no project" alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the "no project" alternative means "no build" wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.

Alternative 1a: No Development

Under the "no development" alternative, the Pleasant Hill Commons Redevelopment Project Area would not be expanded to include the project site, and no new development would occur. Uses within the project area would continue to exist in their current condition with no plans for future expansion or changes of use. This alternative was ultimately rejected from detailed consideration since no impacts would occur under no new development.

Alternative 1b: Reasonably Foreseeable Development

Although unlikely without redevelopment assistance, it is assumed, for the alternative that future development would occur under current land use and zoning designations consistent with available infrastructure and community services under the "no action" alternative. Under this alternative, the Pleasant Hill Commons Redevelopment Project Area would not be expanded and the project site would be redeveloped according to the existing land use designations. It is assumed, for the purposes of this analysis that the maximum allowable buildout of uses in accordance with current zoning designations would occur under this alternative. This alternative is considered in the analysis below.

Impacts

Air Quality

Under the proposed project, the total emissions generated by construction of individual projects, which may have overlapping schedules, could contribute substantially to an existing or projected air quality violation for criteria air pollutants. Implementation of the mitigation measure MM4.1-2 would reduce this impact to a less-than-significant level. Operation of the proposed project would also increase local traffic volumes, but would not expose sensitive receptors to substantial localized CO concentrations as the growth envisioned under the proposed project would not generate CO concentrations exceeding national and State ambient air quality standards. The resulting air quality impacts would be less than significant. Finally, development of the proposed project would have the potential to expose future on-site residents to substantial Toxic Air Contaminants (TACs). Implementation of mitigation measure MM4.1-5 would reduce this impact to a less-than-significant level.

However, significant and unavoidable impacts would occur under the proposed project. Operation of the project would exceed BAAQMD standards for ROG, NO_x, and PM_{10} Even with the implementation of mitigation measures MM~~4.1-3~~4.1-5 and 4.1-6, emissions would not be reduced to a less-than-significant level. Like the proposed project, Alternative 1b would involve development of the project area consistent with existing land use and zoning designations, similar to the proposed project. Therefore, it is reasonable to assume that this alternative would have impacts that are significant and similar in scale to the proposed project.

Land Use

Significant land use impacts were not identified for the proposed project. Nonetheless, the less-than significant impacts that were identified under the proposed project would not occur under the Reasonably Foreseeable Development Alternative as the proposed project would not physically divide an established community and would not conflict with applicable land use plans adopted by the City of Pleasant Hill. Like the proposed project, this impact would be ***less than significant***.

Noise

Under the proposed project, increase in noise levels due to project construction and operation would occur near noise-sensitive uses (e.g., residences). Noise impacts occurring would result in a substantial temporary or periodic increase in ambient noise levels. However, the project's construction noise impacts would be temporary, would not occur during recognized sleep hours, and would be consistent with the exemption for construction noise that exists in the Municipal Code. Implementation of mitigation measures MM4.3-1 through MM4.3-4 would ensure that these impacts remain less than significant. Impacts occurring during operation could generate increased noise produced by both on-site and off-site stationary sources that would cause a substantial permanent increase in ambient noise levels in the project vicinity. Implementation of mitigation measures MM4.3-5 through MM4.3-8 would reduce this impact to a less-than-significant level. Next, the increase in local traffic volumes under the proposed project would cause a substantial permanent increase in ambient noise levels in the project vicinity. This

impact would be reduced to a less-than-significant level with implementation of mitigation measures MM4.3-9 and MM4.3-10. Finally, operation of the proposed project would not generate and expose sensitive receptors on site or off site to excessive groundborne vibration or groundborne noise levels. This is considered a less-than-significant impact.

However, significant and unavoidable impacts would occur under the proposed project. Construction of the proposed project could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels and could expose people residing or working in the project site to excessive noise levels from the Buchanan Field Airport. Even with the implementation of mitigation measures MM4.3-1 and MM4.3-2, groundborne vibration during construction would not be reduced to a less-than-significant level. Like the proposed project, Alternative 1b would involve development of the project area consistent with existing land use and zoning designations, similar to the proposed project. Therefore, it is reasonable to assume that this alternative would have impacts that are significant and similar in scale to the proposed project.

Transportation

Under the proposed project, the increase in hazards due to a design future or incompatible uses would be less than significant. In addition, impacts associated with adequate emergency access and conflicts with adopted policies, plans, or programs supporting alternative transportation would also be less than significant. Finally, while the proposed project, in combination with other development within the City, could increase bicycle and pedestrian circulation needs, the project's contribution to this impact would be less than significant.

However, significant and unavoidable impacts would occur under the proposed project. Increases in traffic volumes on local roadways, intersections, and ramp junctions would increase under the proposed project. While mitigation is available to reduce all traffic and circulation impacts associated with increases in traffic volumes to a less-than-significant level, the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) would continue to operate at LOS E under the proposed project as there is no feasible mitigation to reduce this impact. This condition is considered unacceptable. In addition, as the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) is also a Congestion Management Plan designated intersection, increased traffic volumes would also exceed standards established by the Contra Costa Transportation Authority. Again, as no feasible mitigation is available, this condition is considered unacceptable. Like the proposed project, Alternative 1b would involve development of the project area consistent with existing land use and zoning designations, similar to the proposed project. Therefore, it is reasonable to assume that this alternative would have impacts that are significant and similar in scale to the proposed project.

CEQA Considerations

The Reasonably Foreseeable Development Alternative would result in potentially significant irreversible effects, and result in cumulative impacts similar to the proposed project.

Summary of Significant and Unavoidable Impacts

Significant impacts to air quality, noise, and traffic and circulation would remain under this alternative.

5.3.2 Alternative 2—DVC Plaza Only

Description

Under this alternative, only the DVC Plaza portion of the project area would be included within the Pleasant Hill Commons Redevelopment Project Area. This alternative would contain the same project elements as the proposed project for the DVC Plaza, but would not include the Hookston Station portion of the project area. Therefore, the DVC Plaza property would be designated for retail and residential uses, the same as the proposed project. The existing uses within the Hookston Station area would not be subject to future redevelopment activities; therefore, the existing light industrial uses would not be affected. Under this alternative, there would be an overall net increase of approximately 147,463 sf of commercial uses and 300 residential units beyond current uses.

Impacts

Air Quality

Impacts associated with construction emissions contributing to an air quality violation, CO concentrations, and exposure of future residents to TACs would remain the same under the DVC Plaza Only Alternative. Similar to the proposed project, this alternative would not conflict with nor obstruct the BAAQMD Clean Air Plan. However, operation of the alternative would exceed BAAQMD standards for ROG, NO_x, and PM_{10}. Even with the implementation of mitigation measures MM~~4.1-3~~4.1-5 and 4.1-6, emissions would not be reduced to a less-than-significant level. Therefore, this impact would be ***significant and unavoidable***, although the overall impact would be less severe under this alternative as the project area would be smaller.

Land Use

Like the proposed project, no established community would be physically divided and no conflicts with applicable land use plans adopted by the City of Pleasant Hill would occur under the DVC Plaza Only Alternative. As a result, this impact would remain ***less than significant***.

Noise

Impacts associated with noise levels during construction and operation, a substantial permanent increase in ambient noise levels due to traffic, and groundborne vibration during construction would remain the same under the DVC Plaza Only Alternative. However, similar to the proposed project, construction associated with this alternative could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels and operation of the alternative could expose people residing or working within the project site to excessive noise levels from the Buchanan Field Airport.

Even with the implementation of mitigation measures MM4.3-1 and MM4.3-2, groundborne vibration during construction would not be reduced to a less-than-significant level. Therefore, these impacts would be ***significant and unavoidable***, although the overall impacts would be less severe under this alternative as the project area would be smaller.

Transportation

Impacts associated with hazards, emergency access, adopted policies, plans, or programs supporting alternative transportation, and bicycle and pedestrian circulation needs would remain the same under the DVC Only Alternative. However, similar to the proposed project, increases in traffic volumes on local roadways, intersections, and ramp junctions would increase under this alternative. While mitigation is available to reduce all traffic and circulation impacts associated with increases in traffic volumes to a less-than-significant level, the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) would continue to operate at LOS E under the alternative as there is no feasible mitigation to reduce this impact. In addition, the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) would continue to exceed standards established by the Contra Costa Transportation Authority. As no feasible mitigation is available, these impacts would be ***significant and unavoidable***, although the overall impacts would be less severe under this alternative as the project area would be smaller.

CEQA Considerations

As discussed in the above analysis, the impacts of the DVC Plaza Only Alternative would be similar to the proposed project, but generally less severe because fewer structures would be redeveloped. However, impacts related to air quality, land use, noise and traffic would remain the same. Therefore, cumulative impacts would be similar to the proposed project, but the DVC Plaza Only Alternative would generally contribute a smaller portion to cumulative impacts.

Summary of Significant and Unavoidable Impacts

Significant and unavoidable impacts to air quality, noise and traffic and circulation would remain under the DVC Plaza Only Alternative.

5.3.3 Alternative 3—Hookston Station Only

Description

Under this alternative, only the Hookston Station portion of the project area would be included within the Pleasant Hill Commons Redevelopment Project Area. This alternative would contain the same project elements as the proposed project for the Hookston Station, but would not include the DVC Plaza Station portion of the project area. Therefore, the Hookston Station property would be designated for light industrial use, the same as the proposed project. The existing uses within the DVC Plaza area would not be subject to future redevelopment activities; therefore, the existing retail uses would not be

affected. Under this alternative, there would be an overall net increase of approximately 19,954 sf of light industrial uses.

Impacts

Air Quality

Impacts associated with construction emissions contributing to an air quality violation, CO concentrations, and exposure of future residents to TACs would remain the same under the Hookston Station Only Alternative. Similar to the proposed project, this alternative would not conflict with nor obstruct the BAAQMD Clean Air Plan. However, operation of the alternative would exceed BAAQMD standards for ROG, NO_x, and PM_{10}. Even with the implementation of mitigation measures MM~~4.1-3~~4.1-5 and 4.1-6, emissions would not be reduced to a less-than-significant level. Therefore, this impact would be ***significant and unavoidable***, although the overall impact would be less severe under this alternative as the project area would be smaller.

Land Use

Like the proposed project, no established community would be physically divided and no conflicts with applicable land use plans adopted by the City of Pleasant Hill would occur under the Hookston Station Only Alternative. Furthermore, standards contained in the Contra Costa County Airport Land Use Compatibility Plan would not apply to land uses under this alternative as the Hookston Station Area is location outside the influence are for the Buchanan Field Airport. As a result, this impact would remain ***less than significant***.

Noise

Impacts associated with noise levels during construction and operation, a substantial permanent increase in ambient noise levels due to traffic, and groundborne vibration during construction would remain the same under the Hookston Station Only Alternative. However, similar to the proposed project, construction associated with this alternative could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels. Even with the implementation of mitigation measures MM4.3-1 and MM4.3-2, groundborne vibration during construction would not be reduced to a less-than-significant level. Therefore, this impact would be ***significant and unavoidable***, although the overall impact would be less severe under this alternative as the project area would be smaller.

Transportation

Impacts associated with hazards, emergency access, adopted policies, plans, or programs supporting alternative transportation, and bicycle and pedestrian circulation needs would remain the same under the Hookston Station Only Alternative. However, similar to the proposed project, increases in traffic volumes on local roadways, intersections, and ramp junctions would increase under this alternative. Nevertheless, while the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord

Parkway) would operate at an unacceptable LOS E and would continue to exceed standards established by the Contra Costa Transportation Authority under the proposed project, traffic generated by uses within the Hookston Station Area under this alternative would not affect this intersection and mitigation is available under the alternative to reduce all traffic and circulation impacts associated with increases in traffic volumes at all other intersections to a ***less-than-significant*** level. Therefore, overall impacts would be less severe under this alternative as uses within the Hookston Station Area would not affect the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) and the project area would involve a lesser level of development.

CEQA Considerations

As discussed in the above analysis, the impacts of the Hookston Station Only Alternative would be similar to the proposed project, but generally less severe because fewer structures would be redeveloped. However, impacts related to air quality, land use, noise and traffic would remain the same. Therefore, cumulative impacts would be similar to the proposed project, but the Hookston Station Only Alternative would generally contribute a smaller portion to cumulative impacts.

Summary of Significant and Unavoidable Impacts

Significant and unavoidable impacts to air quality, noise, and traffic and circulation would remain under the Hookston Station Only Alternative.

5.3.4 Alternative 4—Reduced Density

Description

Under this alternative, the DVC Plaza and Hookston Station areas would still be added to the Pleasant Hill Commons Redevelopment Project area, but future development would assume a floor area ratio (FAR) of 0.2:1 instead of a FAR of 0.4:1 assumed under the proposed project. This would result in overall decrease in developable square footage over what was assumed under the proposed project. Specifically, this alternative would result in a reduction of 77,420 sf of retail space within the DVC Plaza area and 65,946 sf of light industrial within the Hookston Station area. In comparison, the DVC Plaza and Hookston Station area would experience an overall net increase of 147,463 sf and 19954 sf, respectively, under the proposed project.

Impacts

Air Quality

Impacts associated with construction emissions contributing to an air quality violation, CO concentrations, and exposure of future residents to TACs would remain the same under Reduced Density Alternative. The Reduced Density Alternative would not conflict with nor obstruct the BAAQMD Clean Air Plan. No feasible mitigation is available for this impact. In addition, operation of the alternative would exceed BAAQMD standards for ROG, NO_x, and PM_{10}. Even with the

implementation of mitigation measures MM~~4.1-3~~4.1-5 and 4.1-6, emissions would not be reduced to a less-than-significant level. Under the Reduced Density Alternative, less square footage would be developed, and air quality impacts would be slightly reduced. Nonetheless, like the proposed project, this impact would remain ***significant and unavoidable***, although the overall impact would be less severe under this alternative as the project area would be smaller.

Land Use

The Reduced Density Alternative would assume a FAR of 0.2:1 for future development, which would result in a reduction of retail commercial in the DVC Plaza Area and light industrial in the Hookston Station Area. However, like the proposed project, no established community would be physically divided and no conflicts with applicable land use plans adopted by the City of Pleasant Hill would occur under this alternative. As a result, this impact would remain ***less than significant***.

Noise

Impacts associated with noise levels during construction and operation, a substantial permanent increase in ambient noise levels due to traffic, and groundborne vibration during construction would remain the same under the Hookston Station Only Alternative. However, similar to the proposed project, construction associated with this alternative could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels. Even with the implementation of mitigation measures MM4.3-1 and MM4.3-2, groundborne vibration during construction would not be reduced to a less-than-significant level. However, under this alternative, less square footage and fewer dwelling units would be developed, and therefore the duration of groundborne vibration during construction would be shorter and the number of residents exposed aircraft noise would be fewer. Nonetheless, like the proposed project, this impact would remain ***significant and unavoidable***, although the overall impact would be less severe under this alternative as the project area would be smaller.

Transportation

Impacts associated with hazards, emergency access, adopted policies, plans, or programs supporting alternative transportation, and bicycle and pedestrian circulation needs would remain the same under the Reduced Density Alternative. However, similar to the proposed project, increases in traffic volumes on local roadways, intersections, and ramp junctions would occur. While mitigation is available to reduce all traffic and circulation impacts associated with increases in traffic volumes to a less-than-significant level, the intersection of Contra Costa Boulevard and Chilpancingo Parkway would continue to operate at LOS E under the proposed project, which is considered unacceptable. In addition, the intersection of Contra Costa Boulevard and Chilpancingo Parkway (Concord Parkway) would continue to exceed standards established by the Contra Costa Transportation Authority. Under this alternative, less square footage would be developed resulting in a smaller increase in traffic volumes. However, as the intersection of Contra Costa Boulevard and Chilpancingo Parkway would operate at LOS E without the project, any increase in traffic volumes would result in a significant impact. Therefore, like the proposed

project, impacts would be ***significant and unavoidable***, although the overall the impact would be less severe as the project area would be smaller.

CEQA Considerations

As discussed through the above analysis, the impacts of the Reduced Density Alternative would be similar to the proposed project, but generally less severe because fewer structures would be redeveloped. However, impacts related to air quality, land use, noise and traffic would remain the same. Therefore, cumulative impacts would be similar to the proposed project, but the Reduced Density Alternative would generally contribute a smaller portion to cumulative impacts.

Summary of Significant and Unavoidable Impacts

Significant and unavoidable impacts to air quality, noise, and traffic and circulation impacts would remain under Reduced Density Alternative.

5.4 SUMMARY COMPARISON OF ALTERNATIVES

Table 5-1 below summarizes the level of significance and relative magnitude of impacts from each alternative, when compared to the proposed project.

Table 5-1 Summary Comparison of Alternatives

Environmental Issue Area	*Proposed Project*	*Alternative 1 (No Project)*	*Alternative 1 (Reasonably Foreseeable Development)*	*Alternative 2 (DVC Plaza Only)*	*Alternative 3 (Hookston Station Only)*	*Alternative 4 Reduced Density*
Air Quality	(2) SU	NI/–	(2) SU/=	(2) SU/–	(2) SU/–	(2) SU/–
Land Use	LTS	NI/–	LTS/=	LTS/=	LTS/=	LTS/=
Noise	(1) SU	NI/–	(1) SU/=	(1) SU/–	(1) SU/–	(1) SU/–
Transportation	(2) SU	NI/–	(2) SU/=	(2) SU/–	LTS/–	(2) SU/–

(NI) = No Impact
(SU) = Significant and Unavoidable
(LTS) = Less Than Significant
(–) = Impacts considered to be less when compared with the proposed project
(+) = Impacts considered to be greater when compared with the proposed project
(=) = Impacts considered to be equal or similar to the proposed project

5.5 ATTAINMENT OF PROJECT OBJECTIVES

Alternative 1 (Reasonably Foreseeable Development [Continuation of Existing General Plan]) would not achieve the overall project objective to eliminate blight and promote, directly or indirectly, new development and the revitalization of existing land uses in the proposed project area. Specifically, Alternative 1 would not renew nor create economic stimulation within the Pleasant Hill Commons Project Area in order to create an environment that would establish the area as a center of community activity. Further, Alternative 1 would not create a functioning balance of commercial (retail and office),

residential and public space, increase that would re-establish aesthetic, economic, and social viability to the Pleasant Hill Commons area.

Alternative 2 (DVC Plaza Only) and Alternative 3 (Hookston Station Only) would both achieve the overall project objective to eliminate blight and promote, directly or indirectly, new development and the revitalization of existing land uses in the proposed project, but to a lesser degree as the amount of area added to the redevelopment plan would be less. In particular, Alternative 2 would achieve a number of project objectives that pertain to the DVC Plaza only, such as increasing the visibility of the DVC Plaza from Contra Costa Boulevard and Golf Club Road, redeveloping the DVC Plaza with a mix of commercial, residential, and public use, continuing to increase, improve and preserve affordable and moderate income housing in the community, and to provide such housing in the income and age categories needed based on the City's share of the region's needs, and restoring habitat and improve public access, including the addition of pedestrian walkways along Grayson Creek. Implementation of Alternative 2 would achieve all the project objectives, but only within the DVC Plaza area. Conversely, Alternative 3 would fail to meet the project objectives that pertain to residential development and the DVC Plaza area, while achieving those of the Hookston Station area.

Alternative 4 (Reduced Density) would allow both the DVC Plaza and Hookston Station areas to be added to the redevelopment project area. However, the total permitted development would decrease from a net increase of 147,463 sf and 300 units in DVC Plaza, to a net increase of 70,043 sf and 150 units. In the Hookston Station area, the permitted development would decrease from a net increase of 19,954 sf to a net *decrease* of 45,992 sf. The net development increase would total 24,051 sf and 150 units. With respect to Alternative 4, the *Report to Council*, dated August 8, 2008, found that a net increase of 105,000 sf and 300 units would be required to generate sufficient tax increment to completely satisfy the project objectives, including economic development, increasing the visibility of DVC Plaza, providing affordable housing, restoring habitat along Grayson Creek, constructing other needed public improvements, and assembling land into parcels. Therefore, while Alternative 4 would meet the intent of the project objectives to facilitate the revitalization of the project areas, it would not entirely meet all of the project objectives due to a lack of sufficient tax generation.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. This would ideally be the alternative that results in fewer (or no) significant and unavoidable impacts. CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives.

Alternative 3 (Hookston Station Only) reduces most of the proposed project's significant impacts to a less-than-significant level, as noted in Table 5-1 (Summary Comparison of Alternatives). The remaining alternatives would reduce the potential impacts of the currently proposed project, although not to the degree of reducing all significant and unavoidable impact to less-than-significant level and therefore not to the degree of Alternative 3. Therefore, Alternative 3 would be environmentally superior to the proposed project because the significant environmental impacts to traffic would be lessened to the

greatest extent. However, as noted above, Alternative 3 would fail to meet the project objectives that pertain to residential development and the DVC Plaza area. Among the remaining alternatives, Alternative 4 (Reduced Density) would not avoid all of the project's significant unavoidable impacts, although impacts would be lessened, but would generally meet the overall intent of the project objectives. Therefore, Alternative 4 would be considered the environmentally superior alternative, although, as stated above, it would not achieve all of the project objectives.

CHAPTER 6 Other CEQA

Section 15126 of the *California Environmental Quality Act* (CEQA) Guidelines requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the Environmental Impact Report (EIR) must also identify (1) significant environmental effects of the proposed project, (2) significant environmental effects that cannot be avoided if the proposed project is implemented, (3) significant irreversible environmental changes that would result from implementation of the proposed project, (4) growth-inducing impacts of the proposed project, (5) mitigation measures proposed to minimize significant effects, and (6) alternatives to the proposed project.

6.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Development under the proposed project would result in the following significant and unavoidable project-related impacts:

Air Quality/Climate Change

- Operation of the proposed project would exceed Bay Area Air Quality Management District standards for ROG, NO_X, and PM_{10} and would result in a projected air quality violation.
- Implementation of the proposed project could contribute to world-wide climate change through the contribution of greenhouse gases.

Noise

- Construction of the proposed project could generate and expose sensitive receptors on site to excessive groundborne vibration or groundborne noise levels.

Transportation and Traffic

- Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Implementation of the proposed project would exceed standards established by the Contra Costa Transportation Authority and/or the City of Pleasant Hill within the study area.

6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Section 15126.2(c) of the CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the proposed project. Specifically, Section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if any of the following were to occur:

- The primary and secondary impacts would generally commit future generations to similar uses
- The project would involve a large commitment of nonrenewable resources
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project
- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy)

The proposed project is essentially infill and would not represent conversion of previously undeveloped land to developed uses. Resources that will be permanently and continually consumed by project implementation include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts related to the unnecessary, inefficient, or wasteful use of resources. In addition, construction activities related to the proposed project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobiles and construction equipment.

With respect to operational activities, compliance with all applicable building codes, as well as project mitigation measures or project requirements, would ensure that all natural resources are conserved or recycled to the maximum extent feasible. It is also possible that new technologies or systems will emerge, or will become more cost-effective or user-friendly, that will further reduce the site's reliance upon nonrenewable natural resources; however, even with implementation of conservation measures, consumption of natural resources would generally increase with implementation of the proposed project.

In addition, a long-term increase in the demand for electrical resources would occur. However, the proposed project would not involve a wasteful or unjustifiable use of energy or other resources, and energy conservation efforts could also occur with new construction. In addition, new development associated with the proposed project will be constructed and operated in accordance with specifications

contained in Title 24 of the CCR. Therefore, the use of energy on site would occur in an efficient manner.

6.3 GROWTH-INDUCING IMPACTS

As required by the CEQA Guidelines, an EIR must include a discussion of the ways in which the proposed project could directly or indirectly foster economic development or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2(d)). Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval. Under CEQA, induced growth is not considered necessarily beneficial, detrimental, or of little significance to the environment.

In general, a project may foster spatial, economic or population growth in a geographic area if it meets any one of the criteria identified below:

- The project removes an impediment to growth (e.g., the establishment of an essential public service, or the provision of new access to an area)
- The project results in the urbanization of land in a remote location (leapfrog development)
- The project establishes a precedent-setting action (e.g., a change in zoning or general plan amendment approval)
- Economic expansion or growth occurs in an area in response to the project (e.g., changes in revenue base, employment expansion, etc.)

If a project meets any one of these criteria, it may be considered growth inducing. Generally, growth-inducing projects are either located in isolated, undeveloped, or underdeveloped areas, necessitating the extension of major infrastructure such as sewer and water facilities or roadways, or encourage premature or unplanned growth.

To comply with CEQA, an EIR must discuss the ways in which the proposed project could promote economic or population growth in the vicinity of the project and how that growth will, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2(d)). Under CEQA, this growth is not to be considered necessarily detrimental, beneficial, or of significant consequence. Induced growth is considered a significant impact only if it affects (directly or indirectly) the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth, in some other way, significantly affects the environment.

Introduction to Growth Inducement Issues. Growth can be induced in a number of ways, including the direct construction of new homes and businesses, the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations (typically through the provision of

additional capacity or supply), or the reduction or elimination of regulatory constraints on growth that could result in growth unforeseen at the time of project approval.

Elimination of Obstacles to Growth. The elimination of either physical or regulatory obstacles to growth is considered to be a growth-inducing effect. A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth. According to ABAG Population Growth Projections for 2005–2035, a population increase of 3,000 residents is projected for Pleasant Hill, representing an annual average growth of 0.3 percent or approximately 100 residents per year.

6.3.1 Economic Effects

The combination of land uses on the proposed project would function to increase retail and commercial sales and activities within the City, as well as enhance the economic viability of the area. The creation of new commercial activities and enhancement of existing commercial facilities would contribute to the economic vitality of the City, which would enable the continued provision of high quality services and programs for residents and businesses and would contribute to a large municipal revenue stream.

The positive revenue stream may result in the creation of indirect and induced jobs. Indirect jobs are those that would be created when the future owners and/or managers of the retail-commercial uses purchase goods and services from businesses in the region, and induced jobs are those that are created when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region. The City's economic impacts are primarily the result of purchases of goods and services as well as payment of taxes and salaries, which affects the regional economy of the City and County, and on a more indirect basis, California. Therefore, the positive revenue stream and the resulting increased economic viability of the project site could result in indirect growth-inducing impacts.

Increased Demand on Secondary Markets Development (residential or employment-generating uses) typically generates a secondary or indirect demand for other goods and services. The secondary or economic change can be quantified by an economic multiplier, which is an economic term used to describe interrelationships among various sectors of the economy. One aspect of the multiplier effect is the potential catalytic force a project can have on satellite or follow-up development because it creates a demand or market to be served (e.g., neighborhood commercial development around residential development).

Increased Pressure on Land Use Intensification Unforeseen future development can be spurred by the construction of certain projects that have the effect of creating unique and currently unmet market demands, or by creating economic incentive for future projects by substantially increasing surrounding property values. These types of impacts are most often identified for projects developed in areas that are currently lacking a full spectrum of economic activity. For example, newly developing office areas may be lacking in a full range of support commercial uses; this support commercial demand can cause increased

pressure for rezones or general plan amendments aimed at providing adequate land to accommodate businesses seeking to serve the unmet demand.

6.3.2 Growth-Inducing Effects of the Proposed Project

Remove an Impediment to Growth/Precedent–Setting Action

The proposed project would not induce substantial population growth in the area beyond that already forecasted for the City of Pleasant Hill in the current General Plan. The proposed project provides for redevelopment and infill projects that would improve the pedestrian streetscape and encourage transit-oriented development opportunities. The proposed project would also make efficient use of the existing infrastructure.

Although the proposed project would remove impediments to growth that is already allowed under the General Plan, the proposed project would not remove an impediment to growth with respect to CEQA. Further, the proposed project would allow for continued use of industrial development within the Hookston Station Area. The proposed designations would be generally consistent with the nature of on-site and surrounding development.

6.4 MITIGATION MEASURES PROPOSED TO MINIMIZE SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

Table 1-2 (Summary of Environmental Impacts and Mitigation Measures), which is contained in Chapter 1 (Summary of Environmental Impacts and Mitigation Measures) of this EIR, provides a comprehensive identification of the proposed project's environmental effects and proposed mitigation measures.

6.5 ALTERNATIVES TO THE PROPOSED PROJECT

Alternatives to the proposed project are presented in Chapter 5 (Alternatives) of this EIR.

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