HUNTER SUBDIVISION PROJECT

Draft EIR
SCH: 2012032048

Prepared for the City of St. Helena

May 29, 2012

URBAN
PLANNING
PARTNERS
INC.

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I. INTRODUCTION

A. PURPOSE OF EIR

In compliance with the California Environmental Quality Act (CEQA) and CEQA Guidelines, this Draft Environmental Impact Report (EIR) describes the environmental consequences of the proposed Hunter Subdivision Project (project). This EIR is designed to inform City staff, the Planning Commission, City Council, other responsible and interested agencies, and the general public of: (1) the proposed project and the potential environmental consequences of the project; (2) Standard Conditions of Approval and mitigation measures necessary to lessen or avoid significant adverse impacts; and (3) a reasonable range of feasible alternatives to the project. The information contained in the EIR will be reviewed and considered by public agencies prior to making a decision to approve, reject, or modify the proposed project.

The City of St. Helena (City) is the lead agency for environmental review of the proposed project and as such has made the Draft EIR available for public review for the period identified in the Notice of Availability published with this document. During this time, written comments may be submitted to the City Planning Department at the address indicated on the Notice of Availability. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR document.

B. PROPOSED PROJECT

The Hunter Subdivision Project seeks to develop a vacant site in St. Helena. This project proposes to subdivide a 16.9-acre parcel into 51 single-family residential lots, designate a 3.4-acre parcel for multi-family development, and create a 0.06-acre remainder parcel that would be non-buildable. The 51 single-family lots could be developed with up to 51 single-family market-rate housing with accessory/granny units built on 11 of the single-family lots. The granny units may be income-restricted. The multi-family parcel is anticipated to accommodate up to 25 income restricted, workforce housing apartment units. The project site is located in the northeast portion of St. Helena, at the eastern terminus of Adams Street, three blocks east of downtown and State Route 29 (SR 29), and west of the Napa River, as shown in Figure I-1. Approximately 40 percent of the site is currently under cultivation with vineyards and the remainder is vacant.

C. EIR SCOPE

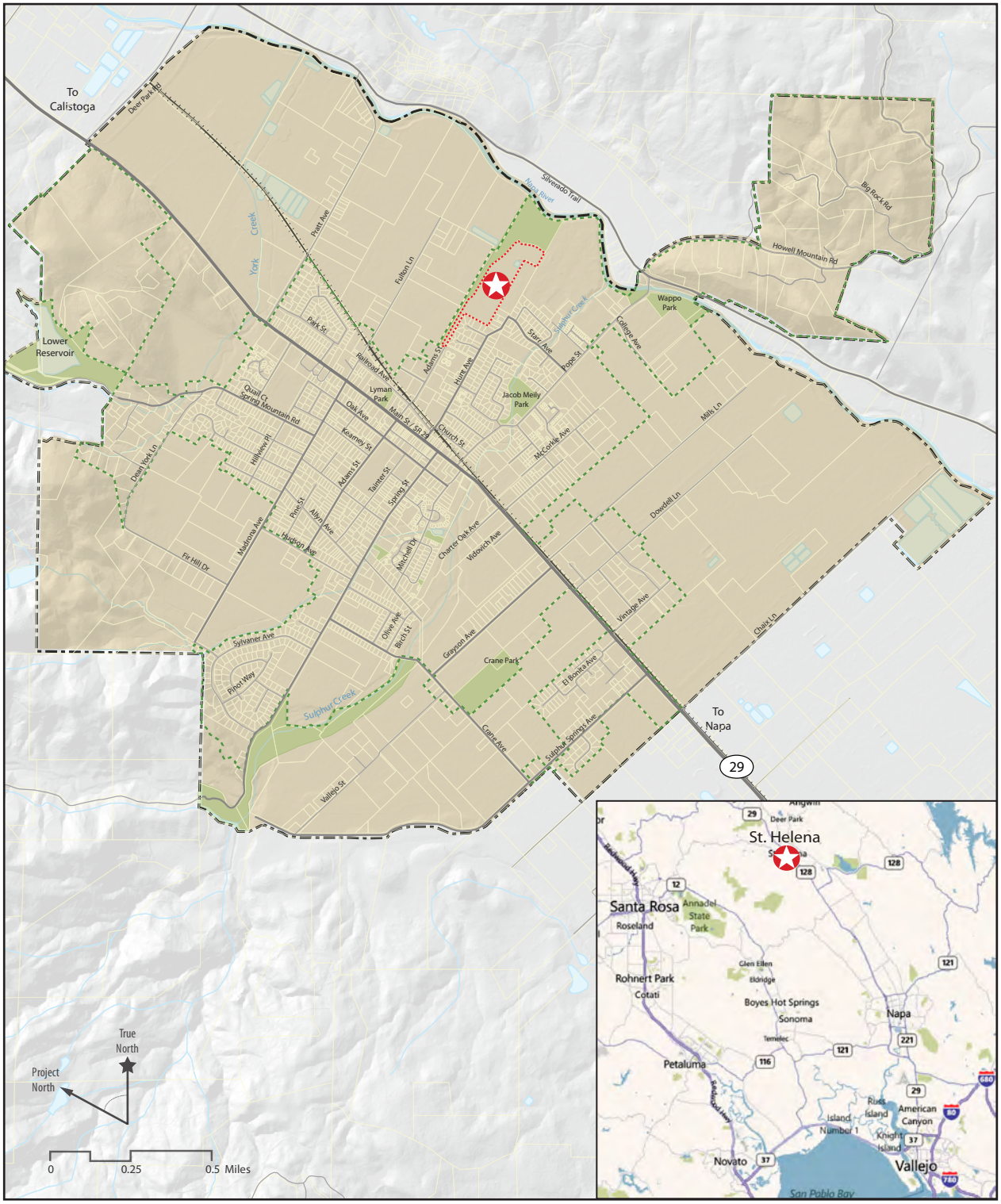
The City of St. Helena circulated a Notice of Preparation (NOP) and an Initial Study. The following topics were excluded from detailed analysis in the EIR because it was determined in the Initial Study and during the scoping period that these impacts would be less than significant: Land Use and Planning, Mineral Resources, and Population and Housing. A detailed description of the project's impacts related to each of these topics is provided in the Initial Study (see Appendix A incorporated).

The following environmental topics are addressed in this EIR:

A. Aesthetic Resources
B. Agricultural and Forest Resources
C. Air Quality
D. Biological Resources
E. Cultural and Paleontological Resources
F. Geology, Soils, and Seismicity
G. Greenhouse Gas Emissions
H. Hazards and Public Safety
I. Hydrology and Water Quality
J. Noise and Vibration
K. Public Services, Recreation, and Utilities
L. Traffic and Transportation

The NOP was published on September 23, 2011, and public comments on the scope of this EIR were accepted until January 6, 2012. The NOP was sent to property owners within 300 feet of the project site as well as to responsible and trustee agencies, organizations, and interested individuals. Additionally, the NOP was sent to the State Clearinghouse.

A public scoping session was held on December 6, 2011. NOP comments were received from public agencies, area property owners and concerned citizens regarding a wide range of issues to be addressed in this EIR. Topic areas that were most widely referenced in the NOP comments letters include aesthetics, hazards and hazardous materials, hydrology and water quality, and transportation and traffic. The NOP and written comments received are included in Appendix A. The comments relevant to each topic analyzed in this EIR are addressed in Chapter IV. Setting, Impacts and Mitigation Measures. Responses to non-CEQA topics and areas already covered in the Initial Study are included in Chapter 2, Summary.



Source: City of St. Helena Draft General Plan 2030; and Google Earth, 2011.

Project Location

Project Site

City Limits, City of St. Helena

Urban Limit Line, City of St. Helena

Figure I-1
Hunter Subdivision Project EIR
Project Location and Regional Vicinity Map

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

- *Chapter I – Introduction:* Discusses the overall EIR purpose, provides a summary of the proposed project, describes the EIR scope, and summarizes the organization of the EIR.
- *Chapter II – Summary:* Provides a summary of the impacts that would result from implementation of the proposed project, and describes Standard Conditions of Approval and mitigation measures recommended to avoid or reduce significant impacts.
- *Chapter III – Project Description*: Provides a description of the project objectives, project site, site development history, the proposed development, and required approval process.
- *Chapter IV – Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*: Describes the following for each environmental technical topic: existing conditions (setting), significance criteria, potential environmental impacts and their level of significance, and mitigation measures recommended when necessary to mitigate identified impacts. Cumulative impacts are also discussed in each technical topic section. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance level is identified for each impact before and after implementation of the recommended mitigation measure(s).
- *Chapter V – Alternatives*: Provides an evaluation of three alternatives to the proposed project. The alternatives are included to meet the CEQA requirement that require an EIR to describe a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. The CEQA alternatives include the: No Project/No Build Alternative; Reduced Density Alternative; and Residential/Agricultural Preserve Alternative.
- *Chapter VI – CEQA-Required Assessment Conclusions:* Provides the required analysis of growth-inducing impacts, significant irreversible changes, effects found not to be significant, and significant unavoidable and cumulative impacts.
- *Chapter VII – Report Preparation*: Identifies preparers of the EIR, references used, and the persons and organizations contacted.
- *Appendices:* The appendices contain the Initial Study, NOP, written comments submitted on the NOP, comments made at the scoping session, air quality data, traffic data, and noise data.

All supporting technical documents and the reference documents are available for public review at the City of St. Helena City Planning Department.

The Draft EIR is available for public review for the period identified in the Notice of Availability attached to the front of this document. During this time, written comments on the Draft EIR may be submitted to the City of City Planning Department at the address indicated on the Notice of Availability. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR.

II. SUMMARY

A. OVERVIEW OF PROPOSED PROJECT

This EIR has been prepared to evaluate the potential environmental effects of the Hunter Subdivision Project. The 16.9-acre project site is located in the northeast portion of St. Helena, at the eastern terminus of Adams Street, three blocks east of downtown and State Route 29 (SR 29), and west of the Napa River, as shown in Figure III-1. The site is relatively flat and undeveloped with vineyards covering approximately 40 percent of the site.

Key elements of the project include subdividing the property into:

- A total of 51 single-family parcels, ranging in size from 7,000 to 8,000 square feet that would accommodate up to 51 market rate single-family units and 11 accessory/granny units that may be income-restricted;
- One approximately 3.4-acre parcel that would accommodate up to 25 income-restricted apartment units; and
- A 0.06-acre remainder parcel that would remain undeveloped.

B. SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in Chapter IV, Setting, Impacts, and Mitigation Measures. CEQA requires a summary to include discussion of: (1) potential areas of controversy; (2) significant impacts, and proposed mitigation measures; (3) cumulative impacts; (4) significant irreversible and unavoidable impacts; and (5) alternatives to the proposed project. Each of these topics is summarized below.

1. Potential Areas of Controversy

The City received both written and verbal comments on the Notice of Preparation (NOP) dated September 23, 2011. Most of the comments related to potential environmental impacts of the project, key areas of controversy/concern are summarized below. A more detailed list can be found in Appendix A, Scoping Session Summary Report.

Comments related to the Project's Environmental Review included:

- Effects of increased traffic at and around the project site;
- Impacts on floodplain levels;
- Effects of hazards related to site flooding;
- Geology and soil impacts with regard to levee safety and stability;

- Analysis of groundwater use;
- Adequacy of water supply;
- Impacts on park ratio;
- Effect on light from the project on the nighttime sky;
- Land use impacts; and
- Concerns related to ingress and egress in the event of an emergency.

Copies of the NOP and written comment letters are included in Appendix A.

Comments that were specific to environmental review were considered to inform the scope of this EIR. The comments relevant to a specific topic (e.g., Hydrology and Water Quality) are discussed or addressed in the relevant section in Chapter IV, Setting, Impacts, and Mitigation Measures. If the comment is not specifically addressed in the analysis, an explanation as to why it is not addressed is provided under the *Determining Significance and Scope* subsection for each environmental topic included in Chapter IV.

2. Significant and Significant Unavoidable Impacts

Under CEQA, a significant impact on the environment is defined as "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[1]

As discussed in Chapter IV, Setting, Impacts, and Mitigation Measures, and shown in Table II-1 below, the project would result in several potentially significant impacts. However, most of the impacts identified could be mitigated to a less-than-significant level with implementation of the recommended mitigation measures. Impacts related to Agriculture and Forest Resources, Air Quality, and Traffic and Transportation may remain significant and unavoidable. These impacts are detailed in Table II-1 at the end of this chapter.

Cumulative impacts are discussed in Chapter VI, CEQA Required Assessment & Conclusions. The proposed project would not significantly contribute to or be affected by any significant cumulative impacts other than Agriculture and Forest Resources, Air Quality, and Traffic and Transportation.

3. Alternatives to the Proposed Project

Chapter V includes analysis of three alternatives to the proposed project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The three project alternatives analyzed in Chapter V include:

[1] 14 California Code Regs. 15382; Public Resources Code 21068.

- The **No Project/No Build Alternative**, which assumes the continuation of existing conditions within the project site;
- The **Reduced Density Alternative**, which assumes development of the entire project site with a reduced density of 2.96 du/acre, resulting in a maximum of 50 units on the site (versus 87 units); and
- The **Residential/Agricultural Preserve Alternative**, which assumes that approximately 6.5 acres on the eastern portion of the site which originally proposed single-family lots would now be preserved as Agricultural Preserve. Development would occur in the remainder of the site, retaining the density of 5.1 du/acre, resulting in a maximum of 50 units on the site (versus 87 units).

C. SUMMARY TABLE

Information in Table II-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with environmental issues discussed in Chapter IV of this EIR. The table is arranged in four columns: (1) impacts; (2) level of significance prior to mitigation (when mitigation is necessary); (3) recommended mitigation measures; and (4) level of significance after implementation of the mitigation measures. Levels of significance are categorized as follows: LTS = Less Than Significant, S = Significant, and SU = Significant and Unavoidable. A series of mitigation measures are noted where more than one mitigation measure is required to achieve a less-than-significant impact. For a complete description of potential impacts and recommended mitigation measures, please refer to the specific discussions in Chapter IV.

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
A. Aesthetic Resources			
AES-1: The proposed project would create a new source of light and glare affecting day and nighttime views.	S	AES-1: Lighting design guidelines for new development shall be developed that mitigate light pollution while ensuring adequate nighttime security. The guidelines shall be approved by the City as part of the Design Review process and prior to the issuance of the first building permit for the project. AES-1a: Lighting shall be shielded to reduce glare and shall be cast downwards. Outdoor lighting shall occur primarily for the purpose of security and safety. Up cast lighting shall be discouraged to minimize impacts on wildlife and to retain the agricultural ambience of St. Helena. AES-1b: Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare.	LTS
B. Agricultural and Forest Resources			
AGRI-1: Development of the project site would convert Prime Farmland to non-agricultural use.	S	AGRI-1: Prior to issuance of a grading or building permit, whichever occurs first, the project sponsor shall provide written evidence of completion of one or more of the following measures to minimize the loss of agricultural land at a ratio of 1:1 before conversion: 1. Funding and/or purchasing agricultural conservation easements (to be managed and maintained by an appropriate entity) within Napa County. 2. Purchasing credits from an established agricultural farmland mitigation bank within Napa County.	SU

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
AGRI-1 *continued*		3. Contributing agricultural land or equivalent funding to an organization that provides for the preservation of farmland in Napa County. 4. Participating in any agricultural land mitigation program adopted by Napa County that provides equal or more effective mitigation than the measures listed above. Mitigation land shall meet the definition of Prime Farmland, Farmland of Statewide Importance, and/or Unique Farmland and be of similar agricultural quality or higher, as established by the State Department of Conservation. Completion of the selected measure or, with the Planning Director's approval, a combination of selected mitigation measures can occur on qualifying land within Napa County.	
C. Air Quality			
AIR-1: Construction of the proposed project could contribute substantially to an existing or projected air quality violation.	S	AIR-1: During grading and construction, all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, as necessary, to prevent wind-blown dust. 1. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 2. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, or as necessary. The use of dry power sweeping is prohibited.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
AIR-1 *continued*		3. All vehicle speeds on unpaved roads shall be limited to 15 mph. 4. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.	
AIR-2: Heavy-duty diesel equipment used during clearing, grading, and construction would emit DPM and TACs that would temporarily affect local air quality and possibly affect nearby sensitive receptors.	S	AIR-2: Implementation of the following two-part mitigation measure will minimize this impact: AIR-2a: To reduce construction vehicle emissions, the project sponsors shall incorporate these into construction specifications: 1. Idling times shall be minimized by either shutting equipment off when not in use or reducing the maximum idling time to 5 minutes, as required by the California airborne toxics control measure, Title 13, Section 2485 of CCR. Clear signage shall be provided for construction workers at all access points. 2. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.	SU

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
AIR-2 *continued*		AIR-2b: The project sponsors shall ensure that construction contract specifications include a requirement that all off□road construction equipment used on the proposed project be equipped with Tier 3 (Tier 2 if greater than 750 hp) diesel engines or better, or Level 3 CARB-verified emission control devices to meet Tier 3 emission standards, to the extent feasible. The contractor will submit to the City a list of off-road construction equipment 50 horsepower of greater to be used on the project. The list will include the following information: 1. Equipment type and manufacturer. 2. Equipment identification number (required by CARB). 3. Year of engine manufacture. 4. Engine Tier rating. 5. Emission control devices, if applicable. Should it be determined by the construction contractor or its subcontractors that compliance with the emissions control requirements of this mitigation measure is infeasible for a specific piece of construction equipment, the construction contractor shall document, to the satisfaction of the City, that the contractor has complied with this mitigation measure to the extent feasible and indicate why full compliance with the mitigation measure is infeasible.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
D. Biological Resources			
BIO-1: Development of the proposed project could potentially harm nesting special-status or common migratory birds.	S	BIO-1: In order to avoid impacts to special-status birds protected under California Fish and Game Code, and other nesting birds protected under the Migratory Bird Treaty Act, breeding bird surveys in trees and shrubs surrounding the work site and grasslands and vineyards on the site shall be completed prior to any commencement of construction activities during the breeding season (February through August). A qualified biologist shall conduct a survey within two weeks prior to ground disturbance. If an active nest is found, a suitable buffer will be established around the nest and work will be avoided within this buffer until young have fledged. However, if any construction work is to be conducted outside of the breeding season (September through January), no breeding bird surveys are required.	LTS
BIO-2: Development of the proposed project could potentially impact portions of the drainage ditch which is Section 404 waters of the U.S.	S	BIO-2: If the drainage ditch or a portion of the drainage ditch is impacted by filling or is culverted, the existing flow characteristics of the ditch must be determined by a qualified hydrologist so that drainage can and shall be engineered to accommodate flow as it was prior to the impact. If filling or culverting results in removal of vegetation below the ordinary high water mark, mitigation shall include increasing the area of vegetation below the ordinary high water mark elsewhere in the ditch, such as by widening a portion of the ditch or increasing its length. Widening or lengthening shall replace jurisdictional waters of the U.S. area at a minimum functions and values ratio of 1:1. Low Impact Development (LID) techniques within the	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
BIO-2 *continued*		development could be substituted or used in combination with increasing vegetated area below the ordinary high water mark in the ditch, and the substitution or combination shall be equal to a minimum functions and values ratio of 1:1.	
E. Cultural and Paleontological Resources			
CULT-1: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could adversely impact previously discovered or undiscovered potentially significant cultural and archaeological resources.	S	CULT-1: The portion of the project area immediately east and west of Starr Avenue has not been capped with fill. Archaeological and Native American monitoring shall be conducted for all ground-disturbing activities that will impact native soils within the portion of the Project area that did not have fill deposited on it during the Flood Protection Project. The monitoring effort shall be conducted in accordance with an approved Archaeological Monitoring Plan (AMP). In accordance with CEQA Guideline §15064.5 (f), should any previously unknown historic or prehistoric resources, including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, pockets of dark, friable soils, glass, metal, ceramics, wood or similar debris, be discovered during grading, trenching, or other on-site excavation(s), earthwork within 100 ft. of these materials shall be stopped until a professional archaeologist certified by the RPA has an opportunity to evaluate the significance of the find. If the resource appears to be potentially significant, then testing shall be conducted in accordance with an approved archaeological testing plan (ATP). If the testing determines that the resource is potentially eligible to the CRHR, then the archaeologist will suggest appropriate mitigation(s), as determined necessary to protect the resource, as detailed below.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
CULT-1 *continued*		In addition, site CA-NAP-406 shall be governed by the following measures: (A) According to CEQA Section 15126.4, avoidance of historic sites is the preferred mitigation. Since CEQA provisions regarding the preservation of historic sites direct that adverse effects to historic sites shall be avoided, if feasible, site CA-NAP-406 and any other site that may be discovered shall be protected from damaging effects through avoidance. (B) Avoidance can include, but is not limited to, the following options: 1. Planning construction to avoid the archaeological or historic sites. Current plans for the project area include construction on top of recently placed fill that covers the project area east of Starr Avenue, including construction on top of recently placed fill that covers CA-NAP-406. In this area, avoidance may be feasible. West of Starr Avenue, ground-disturbing activities will occur within native soils, making avoidance unfeasible. 2. Incorporation of sites within parks, green space, or other open space. Current plans for the project do not include parks, green space, or other open space, including in the vicinity of CA-NAP-406. 3. Capping the archaeological site with a layer of chemically stable soil before construction. Capping the archaeological site would normally include installation of a water permeable protective barrier that is covered with a 3-foot-thick layer of chemically stable soil before	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
CULT-1 *continued*		constructing non-intrusive facilities on the site. Site CA-NAP-406 was recently covered with a layer of fill from the Flood Protection Project and current plans for the project do not include excavation below the fill layer covering the site. Excavation for landscaping, irrigation or any other purpose shall be limited to the fill layer. If the soil layer or recently placed fill layer cannot accommodate all planned underground utilities, a thicker soil layer may be used to cover the site. In portions of the project that did not have fill deposited on them during the Flood Protection Project, current project plans call for a layer of fill to be deposited east of Starr Avenue. In this area, avoidance through capping the site may be feasible. West of Starr Avenue, current project plans call for lowering the current grade by 1 foot and capping is not feasible. 4. Deeding the site into a permanent conservation easement. Current plans for the project do not include deeding the site into a permanent conservation easement. (C) If excavation below the recently placed fill layer is necessary within the site boundary of CA-NAP-406 during construction, or avoidance of any previously undiscovered site is not feasible, data recovery shall be conducted in accordance with an approved archaeological data recovery plan (ADRP) to mitigate adverse effects to the significance of the site – the area of data recovery being limited to the area of adverse effect. This would fulfill CEQA requirements that the mitigation measure must be "roughly proportional" to the impacts of the project. Data recovery shall be conducted by a professional archaeologist certified by the Registry of	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
CULT-1 *continued*		Professional Archaeologists (RPA) in compliance with CEQA Guideline Section §15064.5. Once the site has been properly tested, data recovered, or preserved to the satisfaction of the professional RPA-certified archaeologist in compliance with CEQA Guideline §15064.5, the site can be further developed. (D) Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center. Previous investigators conducted data recovery at CA-NAP-406 within the area of impact from the Flood Protection Project, which included the levee that was constructed through the central portion of the site. Reporting on the data recovery is not yet complete and the report has not yet been deposited with the California Historical Resources Regional Information Center. CA-NAP-1008 was one of eight archaeological sites identified and tested within the Flood Protection Project APE in 2005. Phase II evaluations were conducted at the site and concluded that it did not constitute a “historic property” (eligible for inclusion on the NRHP) or a “historical resource” (eligible for inclusion on the CRHR) (Bartoy et al. 2005). Other than CA-NAP-406 and CA-NAP-1008, there are no other previously recorded resources in the project site area, and no other previous studies that apply.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
CULT-2: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could disturb human remains, including those interred outside of formal cemeteries.	S	CULT-2: If human remains are discovered during ground disturbing activities, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code states: (A) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. (B) The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within twenty-four hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
CULT-2 *continued*		preconstruction worker training and intermittent construction monitoring by a qualified archaeologist will serve to achieve compliance with this requirement for protection of human remains. Worker training typically instructs workers as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.	
F. Geology, Soils, and Seismicity			
GEO-1: Occupants of the development proposed under the project could be subject to seismic hazards.	S	GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical report shall be prepared and submitted to the City of St. Helena Building Department for review and approval in accordance with adopted City standards. The structural designs shall adhere to the 2010 CBC. Examples of the kinds of measures typical to meet these requirements include pile-supported foundations, use of pre-stressed concrete materials, slab reinforcement, compaction specifications, drainage requirements, use of control joints, and appropriate safety factors. The report shall identify specific building techniques appropriate for minimizing damage from seismic events, including liquefaction and lateral spreading. In addition, the following requirement for the geotechnical and soils report shall be met: ▪ Analysis presented in the geotechnical report shall conform to the California Division of Mines and Geology	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
GEO-1 *continued*		recommendations presented in the Guidelines for Evaluating Seismic Hazards in California. ▪ Design review for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event. ▪ All design criteria and specifications set forth in the design-level geotechnical report shall be implemented as a condition of project approval. This report shall address the final specifications for design and construction intended to limit the effects of seismic hazards to structures and utilities, including but not limited to: foundation design, driven piles, utility corridor design, excavation subgrade preparation, fill materials and compaction specifications, retaining walls and concrete pavement specifications, and drainage and dewatering design. This report shall be completed as a condition of approval of the vesting tentative map or adoption of the development agreement.	LTS
GEO-2: Damage to structures or property could result from unstable, expansive, or corrosive soils.	S	GEO-2: The design-level geotechnical report shall include recommendations for foundations and improvements, including sidewalks, parking lots, and subsurface utilities, that take into consideration the potential effects of settlement, collapse, and expansive or corrosive soils. The report shall be submitted to the City of St. Helena Building Department for review and approval. All design criteria and specifications set forth in the design-level geotechnical report shall be implemented as a condition of project approval.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
G. Greenhouse Gas Emissions			
Implementation of the proposed project would not result in any significant greenhouse gas emissions impacts.			
H. Hazards and Public Safety			
HAZ-1: Residual agricultural chemical residues may be present at the project site at concentrations that could affect the health and safety of construction workers and future site residents.	S	HAZ-1: As a condition of approval for construction and grading permits for the project site, the following subsurface investigation and follow-up analysis shall be performed to evaluate agricultural chemical residues in site soils: ▪ Shallow soil samples shall be collected by a qualified environmental professional within all areas of the project area proposed for residential uses and analyzed for pesticides and herbicides in accordance with DTSC's Interim Guidance for Sampling Agricultural Properties. The sampling shall be conducted prior to site grading and development activities. As specified in the Interim Guidance, any detected organic compounds or metals above naturally-occurring concentrations must be evaluated in a human health risk assessment as described in the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual or in comparison to California Human Health Screening Levels. The risk assessment shall describe measures that must be implemented to ensure that any potential added health risks to construction workers, maintenance and utility workers, site users, and the general public as a result of hazardous materials are reduced to a cumulative risk of less than 1×10^{-6} (one in one million) for carcinogens and a cumulative hazard index of 1.0 for non-carcinogens, or as required by a regulatory oversight agency.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HAZ-1 *continued*		The risk assessment will be subject to review and/or approval by DEM and/or other regulatory oversight agencies. The potential risks to human health in excess of these goals would be reduced either by remediation of the contaminated soils (e.g., excavation and off-site disposal) and/or implementation of institutional controls and engineering controls (IC/EC). IC/EC may include the use of a construction risk management plan (for mitigating exposures during construction and maintenance of the project), hardscape (buildings and pavements), importation of clean soil in landscaped areas to eliminate exposure pathways, and/or deed restrictions. If IC/EC are implemented, an Operations and Maintenance Program must be prepared and implemented to ensure that the measures adopted are maintained throughout the life of the project. If IC/EC are implemented, the Operations and Maintenance Program will be subject to review and approval by DEM and/or other regulatory oversight agencies.	
I. Hydrology and Water Quality			
HYD-1: Construction period activities within project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of Napa River and downstream receiving waters.	S	HYD-1: Consistent with the requirements of the statewide Construction General Permit and City Stormwater Management Standards, the project applicant shall prepare and implement a SWPPP designed to reduce potential adverse impacts to surface water quality through the project construction period. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		controlled; (2) where not otherwise required to be under a Water Board permit, all non-storm water discharges are identified and either eliminated, controlled, or treated; (3) site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the BAT/BCT standard; and (4) stabilization BMPs installed to reduce or eliminate pollutants after construction are completed. The SWPPP shall be prepared by a Qualified SWPPP Developer (as defined by the Construction General Permit). The SWPPP shall include the minimum BMPs required in Attachment C of the Construction General Permit for Risk Level 1 dischargers, Attachment D for Risk Level 2 dischargers, or Attachment E for Risk Level 3 dischargers (as applicable, based on final determination of the project's Risk Level status [to be determined as part of the Notice of Intent for coverage under the Construction General Permit]). These include: BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, runoff controls, and BMP inspection/maintenance/repair activities. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook-Construction. The SWPPP must be approved by the City prior to issuance of a grading permit. The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations, and as appropriate	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		(depending on the Risk Level), sampling of the site effluent and receiving waters (receiving water monitoring is only required for some Risk Level 3 dischargers). A Qualified SWPPP Practitioner shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/ repair activities. If the project is Risk Level 2 or 3, the project applicant shall also prepare a Rain Event Action Plan as part of the SWPPP. Based on CASQA guidance, the following are the types of BMPs that shall be implemented for each phase of the development project, subject to review and approval by the Water Board. <u>Erosion Control BMPs</u> ▪ **Scheduling.** To reduce the potential for erosion and sediment discharge, construction shall be scheduled to minimize ground disturbance during the rainy season. The project applicant shall: - Sequence construction activities to minimize the amount of time that soils remain disturbed. - Stabilize all disturbed soils as soon as possible following the completion of ground disturbing work. - Install erosion and sediment control BMPs prior to the start of any ground-disturbing activities. - Where feasible, existing vegetation shall be preserved to provide erosion control.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		- Hydroseeding, geotextile fabrics and mats, mulch, or soil binders shall be used, as appropriate, to reduce erosion on exposed soil surfaces. - **Earth Dikes, Drainage Swales, and Slope Drains.** Earth dikes, drainage swales, or slope drains shall be constructed to divert runoff away from exposed soils and stabilized areas, and redirect the runoff to a desired location, such as a sediment basin. - **Outlet Protection and Velocity Dissipation Devices.** Rock, concrete rubble, or grouted riprap shall be installed at culvert and pipe outlets to drainage conveyances, to prevent scour of the soil caused by concentrated high-velocity flows. <u>Sediment Control BMPs</u> ▪ **Silt Fence/Fiber Roll.** Silt fences or fiber rolls shall be installed around the perimeter of the areas affected by construction, at the toe of stockpile slopes, around storm drain inlets, and at outfall areas, to prevent off-site sedimentation. ▪ **Street Sweeping and Vacuuming.** Areas with visible sediment tracking shall be swept or vacuumed daily, to prevent the discharge of sediment into the stormwater drainage system or creeks. ▪ **Storm Drain Inlet Protection.** Storm drains shall be protected using a filter fabric fence, gravel bag barrier, or other methods, to allow sediments to be filtered or settle out before runoff enters drain inlets.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		▪ **Check Dams.** Barriers shall be constructed of rock, gravel bags, sand bags, or fiber rolls across a constructed swale or drainage ditch, to reduce the effective slope of the channel. This reduces the velocity of runoff, which allows sediment to settle and reduces erosion. ▪ **Sediment Traps.** Sediment traps shall be constructed where sediment-laden runoff may enter the stormwater drainage systems or creeks. Sediment traps are appropriate for drainage areas less than 5 acres. ▪ **Sediment Basins.** If used on-site, sediment basins shall be designed according to the method provided in the California Stormwater Quality Association Stormwater BMP Handbook—Construction. Sediment basins are appropriate for drainage areas of 5 acres or greater. <u>Wind Erosion Control BMPs</u> ▪ **Dust Control.** Potable water shall be applied using water trucks to alleviate nuisance caused by dust. Water application rates shall be minimized to prevent erosion and runoff. ▪ **Stockpile Management.** Silt fences shall be used around the perimeter of stockpiles, and stockpiles shall be covered to prevent wind dispersal of sediment. <u>Tracking Controls</u> ▪ **Stabilized Construction Entrance/Exit.** Construction site entrances and exits shall be graded and stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		▪ **Stabilized Construction Roadway.** Access roads, parking areas, and other on-site vehicle transportation routes shall be stabilized immediately after grading is completed, and frequently maintained to prevent erosion and to control dust. ▪ **Tire Wash.** A tire washing facility shall be installed at stabilized construction access points to allow for tire washing when vehicles exit the site to prevent tracking of dirt and mud onto public roads. <u>Non-Stormwater Controls</u> ▪ **Illicit Connection/Discharge Detection and Reporting.** Contractors shall regularly inspect the site for evidence of illicit connections, illegal dumping, or discharges. Such illicit activities shall immediately be reported to the City. ▪ **Vehicle and Equipment Cleaning.** Construction equipment shall be washed regularly in a designated stabilized area on-site, or off-site. Steam cleaning will not be performed on-site. Phosphate-free, biodegradable soaps shall be used for on-site activities. Wash water from on-site activities shall be contained and infiltrated, to avoid discharges to drain inlets and the river. ▪ **Vehicle and Equipment Fueling and Maintenance.** Vehicles and equipment shall be inspected daily for leaks. Perform vehicle maintenance and fueling off-site whenever possible. If maintenance and fueling must take place on-site, designated areas shall be located at least 50 feet away from storm drain inlets, drainage courses, and receiving waters. Fueling areas	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		shall be protected with berms and dikes to prevent runon, runoff, and to contain spills. Fueling shall be performed on level grade. Nozzles shall be equipped with automatic shutoffs to control drips. Stored fuel shall be enclosed or covered. Drip pans shall be used for all vehicle and equipment maintenance activities. Spill kits shall be available in maintenance and fueling areas, and spills shall be removed with absorbent materials and not washed down with water. If spills or leaks occur, contaminated soil and cleanup materials shall be properly disposed. ▪ **Paving and Grinding Operations.** Proper practices shall be implemented to prevent run-on and runoff, and to properly dispose of waste. Paving and grinding activities shall be avoided during the rainy season, when feasible. <u>Waste Management and Materials Pollution Controls</u> ▪ **Material Delivery and Storage and Use.** Materials such as detergents, concrete compounds, petroleum products and hazardous materials shall be stored in a designated area away from vehicular traffic and drain inlets. The materials shall be stored on pallets with secondary containment. Spill clean-up materials, material safety data sheets, a material inventory, and emergency contact numbers shall be maintained in the storage area. ▪ **Spill Prevention and Control.** Proper procedures shall be implemented to contain and clean-up spills and prevent material discharges into the storm drain system.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-1 *continued*		▪ **Waste Management.** Solid waste shall be collected in designated areas, and stored in watertight containers located in a covered area or with secondary containment. Waste shall be removed from the site regularly. Hazardous wastes shall be stored and disposed in accordance with applicable regulatory requirements. ▪ **Sanitary/Septic Waste Management.** Portable toilets shall be located at least 50 feet away from drain inlets and waterbodies, and away from paved areas. ▪ **Stockpile Management.** Stockpiles shall be surrounded by sediment controls, covered, and located at least 50 feet from concentrated flows of stormwater and inlets. ▪ **Concrete Waste Management.** Concrete washout shall be performed off-site, or in a designated area at least 50 feet away from storm drain inlets. A temporary pit or bermed area shall be constructed where the waste can be discharged and allowed to set for proper disposal. ▪ **Training.** Construction site personnel shall receive training on implementing all BMPs included in the SWPPP. A Qualified SWPPP Practitioner shall perform all BMP inspection/ maintenance/repair and site monitoring activities.	
HYD-2: Operational period activities at the project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of the Napa River and downstream receiving waters.	S	HYD-2: In accordance with the State Water Resources Control Board Low Impact Development Policy and the Phase II General Permit, the project applicant shall prepare and implement a Storm Water Management Plan to control pollutants in post-construction stormwater runoff and non-stormwater discharges, which shall be submitted for review with the building permit application to the City of St Helena and shall be approved prior to building permit issuance. The Storm Water Management Plan	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-2 *continued*		shall be prepared under the direction of a licensed professional registered in the state of California. At a minimum, the Storm Water Management Plan should include the following elements: ▪ An inventory of existing natural hydrologic features and significant natural resources. ▪ A description of the existing and proposed site drainage network and connections to drainage off-site. ▪ A division of the site into separate drainage areas, and an inventory of the current and proposed impervious surfaces in each area. ▪ A description of the treatment option for each drainage area. LID elements shall be used for the treatment of all stormwater runoff before it leaves the project site. ▪ Preliminary design, including calculations, for infiltration, treatment, or flow-control facilities, demonstrating their adequacy. ▪ An inventory of potential contaminant sources and strategies for the protection of storm water quality to the maximum extent practicable. ▪ A draft Operations and Maintenance plan, including a description of maintenance requirements, personnel assigned to that maintenance, and the establishment of a means for which the Operations and Maintenance Plan will be funded and implemented in perpetuity. The Storm Water Control Plan should also document the incorporation of LID elements in the project design. LID elements should include the following strategies, as appropriate:	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-2 *continued*		Reducing Impervious Area ▪ Reduction of street width to the minimum necessary, while ensuring emergency vehicle access and traffic flow. ▪ Reduction of parking footprints by keeping spaces to the minimum required and encouraging transit. ▪ Elimination of unnecessary sidewalks and driveways. Development Siting and Layout ▪ Fitting the design to existing drainage patterns to maximize benefits of the existing terrain. ▪ Clustering development to maximize contiguous open space. Using Natural Drainage Systems ▪ Disconnecting impervious areas from the storm drainage system and using vegetation, soil amendment, and deep tiling to increase infiltration. ▪ Minimizing grading to preserve natural small dips, hummocks, and mounds in undisturbed areas. ▪ Using swales and other landscaping to reduce runoff velocity. ▪ Prior to final sign off of the building permit, the project applicant shall enter into a formal stormwater operation and maintenance agreement with the City. Unless otherwise required by the City, the agreement shall provide that: (1) the responsible party shall inspect the stormwater treatment facilities twice per year, once in the fall prior to the start of the rainy season, and once in the winter; and (2) on or before	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-2 *continued*		April 1 of each year, the party responsible for maintenance shall provide the City with records of all BMP inspections and maintenance.	
HYD-3: The proposed project could result in development within the 100-year flood hazard zone and increase flood inundation depths at and away from the site.	S	HYD-3: In accordance with the requirements of Municipal Code Chapter 15.52, any homes built within a FEMA 100-year flood hazard zone shall be constructed so that the lowest floor elevation is a minimum of 18 inches above the current FEMA base flood elevations. The applicant shall prepare grading plans and construction specifications that demonstrate that any homes proposed to be constructed within the current FEMA 100-year hazard zone are elevated so that the lowest floor is 18 inches above the base flood elevation (i.e., the elevation of the 100-year flood). During construction, these elevations shall be confirmed by a licensed land surveyor and documentation, signed and stamped by the land surveyor, submitted to the City prior to issuance of occupancy permits. In addition, if the project places fill within a FEMA 100-year flood hazard area, engineering hydraulic analysis must be completed that demonstrates that placement of fill would not increase flood inundation depths at or away from the project site. Documentation of this analysis shall be submitted to the City for review and approval prior to issuance of grading and/or building permits	LTS
HYD-4: Flooding associated with a levee breech or overtopping could endanger residents and improvements.		HYD-4: Based on consultation with the City and to provide an additional level of protection for the residences constructed behind the levee: 1) All residences located within the existing FEMA 100-year flood hazard zone (the pre-Flood Control Project floodplain) shall be	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-4 *continued*		constructed so that the lowest floor elevation is a minimum of 18 inches above the pre-Flood Control Project base flood elevations. The applicant shall prepare grading plans and construction specifications that demonstrate that any homes proposed to be constructed within the pre-Flood Control Project 100-year hazard zone are elevated so that the lowest floor is 18 inches above the base flood elevation (i.e., the elevation of the 100-year flood). During construction, these elevations shall be confirmed by a licensed land surveyor and documentation, signed and stamped by the land surveyor, submitted to the City prior to issuance of occupancy permits. 2) To address levee failure, an engineering analysis performed by a qualified professional engineer shall be prepared that demonstrates that those portions of the project site within the pre-Flood Control Project floodplain would not be inundated during a worst-case levee failure scenario. The analysis shall be reviewed by the City and only those portions of the pre-Flood Control project floodplain that are not at risk of damage from a levee failure may be issued building permits. In addition, the project sponsor shall: • Formally notify potential purchasers and residents (if renters) about the residual risk they face and the level of protection they are being provided (e.g. place informative signs in the area, issue informational fact-sheets, etc.). In addition, home purchasers shall be provided disclosure prior to finalizing a home purchase to this effect. Prospective rental tenants shall also receive notification.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
HYD-4 *continued*		• In accordance with the Operations and Maintenance Plan, prepare an evacuation plan and inform all project residents of the procedures contained in the plan; • In accordance with the Operations and Maintenance Plan, alert the community residents when a potential flood situation is developing to give them advance warning so that they can take action to minimize potential damage.	
J. Noise and Vibration			
NOISE-1: The proposed project would result in a temporary increase above ambient noise levels in the project vicinity during the construction phase.	S	NOISE-1: The project applicant would be required to prepare a construction noise control plan prepared by a qualified professional and approved by the City of St. Helena Planning Director prior to issuance of a grading permit by the City. A qualified noise professional is defined as a Board Certified Institute of Noise Control Engineering member or other qualified consultant or engineer approved by the project engineer. The construction noise control plan would include, but not be limited to, the following measures: a) Muffle and maintain all equipment used on-site. All internal combustion engine-driven equipment shall be fitted with mufflers that are in good condition. Good mufflers shall result in non-impact tools generating a maximum noise level of 80 dB when measured at a distance of 50 feet. b) Use “quiet” air compressors and other stationary noise sources where technology exists. c) Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
NOISE-1 *continued*		d) Schedule construction activities to have the least impact on noise sensitive receptors (existing residents) in the area. In accordance with Section 8.24.10.C of the St. Helena Municipal Code, this shall be accomplished with the following measures: i. Limit construction activities, including grading, excavating, paving, and home building, to Monday through Saturday between 8:00 a.m. and 5:00 p.m. ii. Do not allow machinery to be cleaned or serviced past 6:00 p.m. or prior to 7:00 a.m. Monday through Saturday. iii. Limit the allowable hours for the delivery of materials or equipment to the site and truck traffic coming to and from the site for any purpose to Monday through Friday between 7:00 a.m. and 6:00 p.m. iv. Do not allow any construction or construction-related activities at the project site that can be heard at the property line on Sundays and holidays. e) Notify all adjacent land uses of the construction schedule in writing. f) Designate a “disturbance coordinator” who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. g) Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.	

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
K. Public Services, Recreation, and Utilities			
SVCS-1: The proposed project could place an added demand on the City's potable water resources of approximately 12 acre-feet per year (AF/year) (the analysis estimated 11.74 AF/year). Non-potable water for outdoor use would be supplied by the existing on-site well and would not draw from City supplies.	S	SVCS-1: The project must be water-neutral (from the City-delivered water system) through any combination of on-site water conservation measures and/or off-site retrofitting and/or well water. Water neutrality shall be demonstrated to the St. Helena City Engineer in a quantitative water analysis of the project prior to the issuance of the first building permit. The proposed project shall offset the 12 AF of added demand by installing City-approved Ultra-low-flush (ULF) toilets and associated water-efficient fixtures in a sufficient number of existing homes or nonresidential properties having toilets that use greater than 1.6 gallons per flush (Municipal Code 13.12.050). As detailed in the City's ordinance, if the Proposed Project elects to retrofit existing residential units, the number (rounded to the next unit) of retrofits will be based on the following: ▪ Single-family detached = 5 per unit ▪ Apartment (three units or more) = 3.5 per unit ▪ Guest home/second DU = 3.5 per unit No water service will be provided to the Proposed Project unless it can be shown to the satisfaction of the St. Helena City Engineer to be water neutral or until the calculation of the City's 5-year average water use drops to or below 1,950 AF, per the Water Conservation and Emergency Shortage Ordinance. Through the full offset of 12 acre-feet of potable demand, the proposed project's impact on the City's water system will be reduced to less than significant, requiring no construction of additional facilities or expansion of existing facilities.	LTS

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
L. Traffic and Transportation			
TRAF-1: Project traffic would add more than five seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach currently operates unacceptably at LOS F and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay will increase by 11 seconds during the weekday PM peak hour.	S	TRAF-1: The project shall provide a fair share contribution to striping a right-turn lane on the southbound Silverado Trail approach, as this would reduce delay at this intersection to pre-project conditions.	SU
TRAF -2: Project traffic volumes would not result in any unsignalized intersection meeting signal Warrant #3 criteria. The project would, however, contribute more than 1 percent increase in traffic to the Pope Street/Silverado Trail intersection, where Rural Signal Warrant #3 criteria levels are currently met during the weekday AM and PM peak hours as well as during the Saturday peak traffic hour.	S	TRAF-2: The project should provide a fair share contribution towards the signalization of the Pope Street/Silverado Trail intersection as well as any required lengthening of the left turn lane on the Silverado Trail northbound approach required for acceptable signalized operation.	SU
TRAF-3: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street as well as 1 percent to the total intersection volumes during the weekday PM peak hour, where the left turn lane has been observed, and where the theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM peak hours and Saturday PM peak hour.	S	TRAF-3: The project should provide a fair share contribution towards lengthening the northbound Silverado Trail left turn lane to accommodate storage demand and deceleration in coordination with signalization of this intersection.	SU

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
TRAF-4: Project traffic would add more than five seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach would operate unacceptably at LOS F, and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay would increase by 20 seconds during the weekday PM peak hour.	S	TRAF-4: Implement Mitigation Measure TRAF-2.	SU
TRAF-5: The project traffic volumes would not result in any unsignalized intersection meeting Warrant #3 criteria. The project would, however, contribute more than a 1 percent increase in traffic during the existing and 2030 Saturday peak hours to the Pope Street/Silverado Trail intersection where Rural Signal Warrant #3 criteria levels would be met during all time periods.	S	TRAF-5: Implement Mitigation Measure TRAF-2.	SU
TRAF-6: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street during the weekday PM peak hour. At this intersection the left turn lane has been observed, and theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM and Saturday PM peak hours.	S	TRAF-6: Implement Mitigation Measure TRAF-3.	SU

TABLE II-1 SUMMARY OF EIR IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
TRAF-7: The project would conflict with the Vine Trail portion of Napa County's Countywide Bike Plan, Napa County Regional Park Open Space District's Master Trail Plan, and the City's Draft General Plan Circulation Element as the project does not specifically provide for the Vine Trail along the extension of Starr Avenue and Adams Street.	S	TRAF-7: The project should provide Class II (signed and striped) bike lanes along the Starr Avenue and Adams Street roadway extensions.	LTS

III. PROJECT DESCRIPTION

This chapter describes the proposed Hunter Subdivision Project ("project"), which is evaluated in this EIR. The chapter includes a description of the project site, surrounding land uses and planning context followed by the project background and objectives. The remainder of the chapter provides a description of the proposed project, a discussion of the intended uses of the EIR and required project approvals and entitlements.

A. PROJECT SITE

The location of the project site and the characteristics of it and the surrounding environment are described below.

1. Location and Site Characteristics

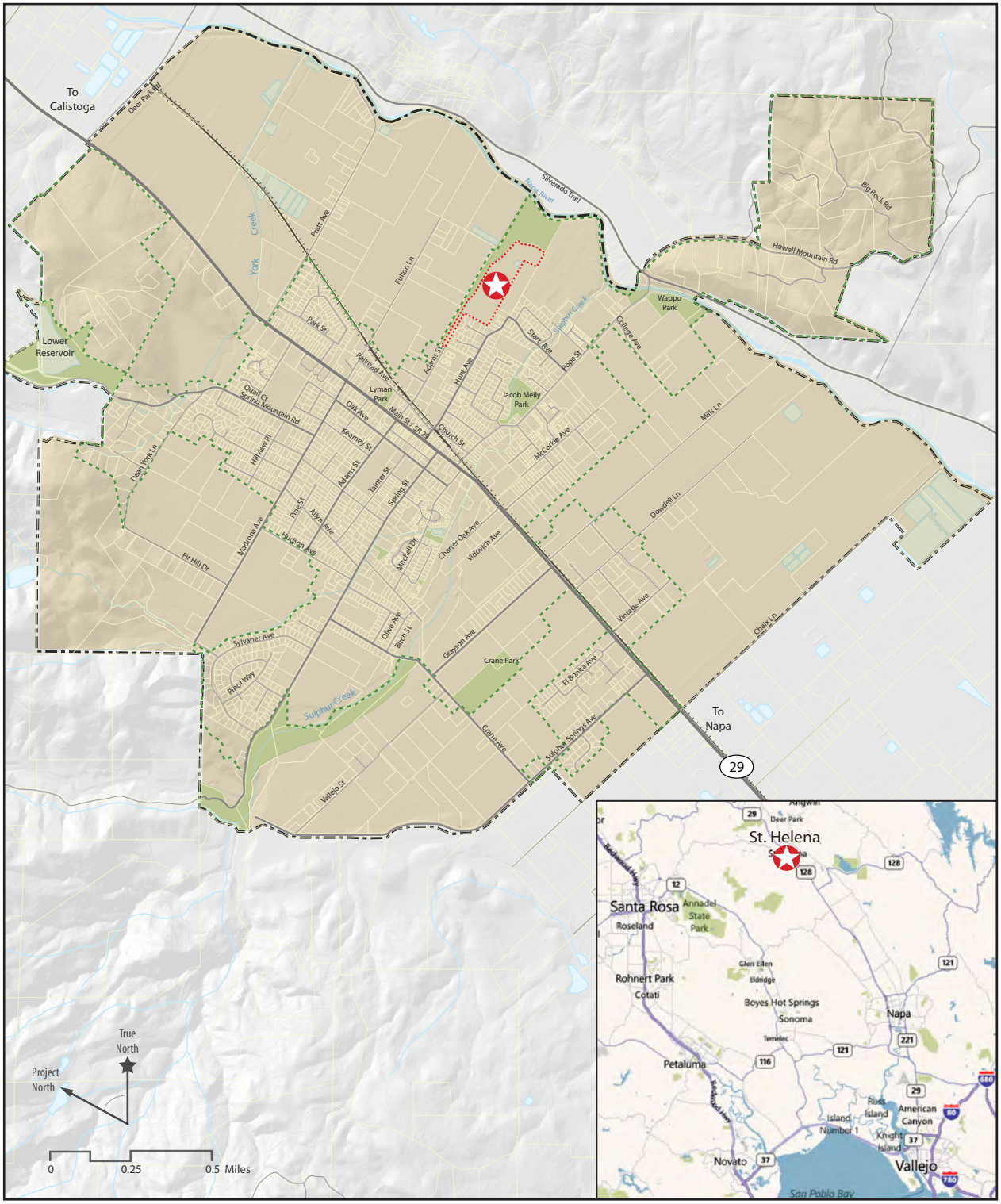
The proposed project is located in the northeast portion of St. Helena, at the eastern terminus of Adams Street, three blocks east of downtown and State Route 29 (SR 29), and west of the Napa River. Figure III-1 shows the project site's regional and local context. The site Assessor's Parcel Number is 009-030-057.

St Helena is located in the Napa Valley. Main Street/SR 29 runs through the downtown, which links Lake County to the north with the City of Napa and Vallejo to the south.

The project site contains approximately 16.9 acres of land, is relatively flat, and is currently undeveloped. The site is generally rectangular with a "panhandle" extension that connects the site to Adams Street west of the panhandle. Approximately 40 percent of the site is under cultivation with a vineyard and the remainder is vacant. No trees, rock outcroppings or other significant natural features exist on the site. Figures III-2 shows an aerial view of the project and Figure III-3 shows views of the site from two different vantage points.

The eastern portion of the site is currently located within a 100-year Flood Hazard area as mapped by the Federal Emergency Management Agency (FEMA). This portion is mapped on Figure III-4. There is also a drainage ditch located along the northern edge of the property that is likely jurisdictional waters of the U.S.[1]

[1] The Army Corps of Engineers (ACOE) issued a formal Jurisdictional Determination on the project site in 2008 as part of the area delineated in 2006 for the Flood Control Project.



Source: City of St. Helena Draft General Plan 2030; and Google Earth, 2011.

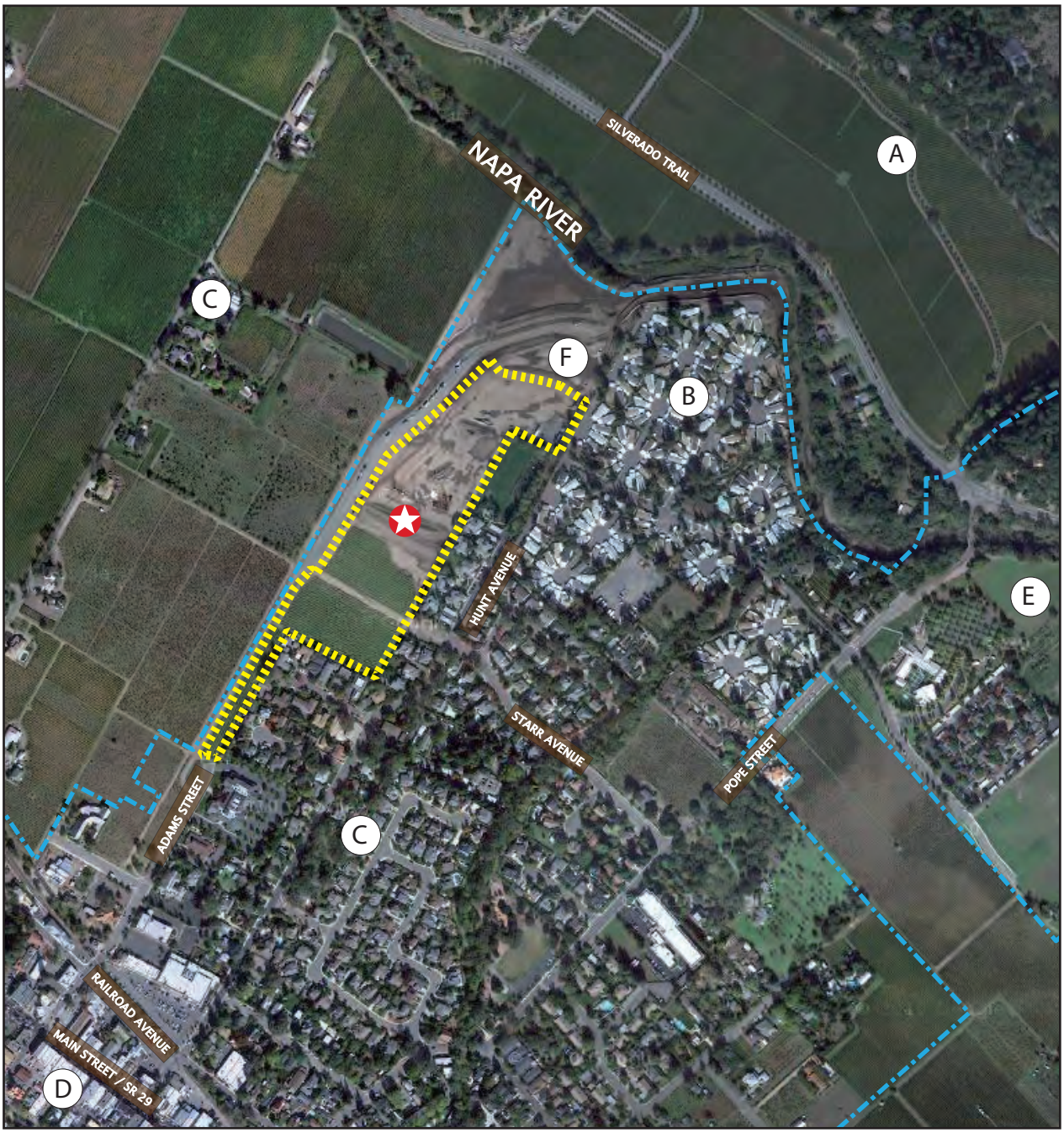
Project Location

Project Site

City Limits, City of St. Helena

Urban Limit Line, City of St. Helena

Figure III-1
Hunter Subdivision Project EIR
Project Location and Regional Vicinity Map



Source: Google Earth, 2011.

0 250 500 Feet

True North

Project North

Project Site

Urban Limit Line, City of St. Helena

(A) Vineyards (outside Urban Limit)

(B) Vineyard Valley Mobile Home Park

(C) Single-Family Homes

(D) Downtown St. Helena

(E) Wappo Park

(F) Detention Basin

Figure III-2
Hunter Subdivision Project EIR
Project Area Aerial Photo

Figure IV-3a View looking southwest from the levee, showing the project site.

Figure III-3b View looking west from the eastern edge of site.

Photo Source: Urban Planning Partners, November 2011.

Figure III-3
Hunter Subdivision Project EIR
Views of Site

2. Surrounding Land Uses

The land uses that surround the project site are currently characterized as a mixture of office and residential development, open space, and vineyards. Uses immediately south of the project site are primarily residential, both single- and multi-family, including the Vineyard Valley Mobile Home Park. Office uses are located immediately adjacent to the site's most western edge at the terminus of Adams Street.

The St. Helena Comprehensive Flood Protection Project (Flood Protection Project) open space property is located north and east of the site and includes a storm water detention basin. The Napa River is located east of the flood control area and the project site. Vineyards and some residential development are north of the site. A public trail developed as part of the Flood Protection Project is also located immediately adjacent to the levee at the site's northern edge.

3. General Plan and Zoning

The City's existing General Plan was adopted in 1993 (1993 General Plan); however, an update to the current General Plan is being considered by the City. The most recent version of the Draft General Plan Update was published in October 2010 (Draft General Plan). Earlier drafts were published in February and July 2010. The City is expected to consider adoption of the updated General Plan in mid-2012.

The 1993 General Plan land use classification for the project site, as established by the Land Use and Growth Management Element of the City's General Plan,[2] is Medium Density Residential (MDR). Properties designated as MDR typically are used for residential purposes, for example, single-family attached and detached homes, secondary residential units, and similar and compatible uses. This designation permits densities of 5.1 to 16.0 dwelling units per acre (du/acre) and is intended to maintain a development pattern in newly developing areas that is consistent with historic development patterns. The Draft General Plan would retain the 1993 designation of MDR for the project site.

The General Plan Housing Element was revised and updated in 2009. The Housing Element identifies the project site as a Key Housing Opportunity Site to satisfy City housing goals and the Regional Housing Needs Allocations (RHNA).

The zoning designation for the project site is also Medium Density Residential (MR). The MR district is consistent with the Medium Density Residential General Plan designation. The district provides for single-family detached homes, accessory dwelling units, limited agricultural uses and compatible uses.

[2] St. Helena, City of, 1993. *General Plan, Land Use and Growth Management Element*.

The project site is not on the Cortese List of Hazardous Materials as published by the California EPA.

B. PROJECT BACKGROUND

A brief overview of the planning process for the project site and associated planning efforts is provided below.

1. Project Site Planning Process

The majority of the project site was acquired by Dennis Hunter in 1997. Planning efforts were first initiated for the project site in 2005. In 2008, the City and Mr. Hunter agreed to a land trade and a lot line adjustment to facilitate the flood protection project (see description below) resulting in the acquisition of a portion of the project site in 2009. Mr. Hunter allowed the placement of excess fill material from the flood protection project on the site. The planning for the project site was reinitiated later in September 2010 and the applicant filed a Tentative Map application to subdivide the property for residential development. At this time, the flood protection project was nearing completion. A completeness letter for the proposed subdivision was issued by the City on March 28, 2011.

2. General Plan Update

The City of St. Helena formally initiated the General Plan Update process in late 2008 which was preceded by a year-long visioning exercise. The most recent version of the Draft General Plan Update was published in October 2010 (Draft General Plan). Earlier drafts were published in February and July 2010. A Draft Environmental Impact Report (EIR) for the General Plan Update was published in August 2010 (SCH# 2010042001) and Comments and Responses were completed in October 2010. In April 2011, the city postponed adoption of the Plan. Since then, City Council directed staff to incorporate changes to the water policy into the General Plan Update (see water supply discussion below). This direction was followed by discussions to reconsider land use designations and housing policy.

As noted above, the current draft of the General Plan Update retains the site's current 1993 designation of Medium Density Residential. The City is expected to consider adoption of the updated General Plan in mid-2012.

Concurrent with the General Plan Update process, the City expedited the update of the Housing Element to meet a State-mandated deadline. This effort was initiated in late 2008 and an updated Housing Element was approved by the City Council in August 2009 and subsequently certified by the State in October 2009. The Hunter property is identified as one of 15 Key Opportunity Sites in the Housing Element. Table 39 of the Housing Element lists the site as having a

realistic unit capacity of 87 units at its minimum density. The Housing Element describes the site as follows:

> ***Site #1 – Hunter Property*** (Medium Density Residential /17.1 Ac) Unit range: 87-274. This site is currently planted to vineyards and is located between the Adams Street Property and the city owned flood control parcel adjacent to the Napa River. The site is within the Napa River flood boundaries and development opportunities will increase as a result of the Flood Protection Project. Development of the site will require improvements to traffic circulation with the extension of Adams Street and Starr Avenue as shown on the General Plan. Water, sewer, and storm drain services will be constructed within the new streets. The parcel will not need either a General Plan Amendment or a rezoning to facilitate residential development.

3. St. Helena Flood Protection Project

The City of St. Helena recently completed the construction of the Flood Protection Project which consists of river channel improvements, a levee, and floodwall construction along the Napa River adjacent to the project site. The Flood Protection Project is anticipated to result in a revision to the 100-year floodplain in the vicinity of the Vineyard Valley Mobile Home Park and the Hunter property. The 100-year and 500-year base flood elevations has been proposed to be remapped to reflect the footprint of the flood project construction and the redirection of the floodwaters as a result of the post-project condition. The Flood Protection Project was designed and constructed to meet or exceed all design criteria for Federal, State and local flood control projects.

The City recently submitted an application to request a Letter of Map Revision (LOMR) to the Federal Emergency Management Agency (FEMA) that would revise the effective National Flood Insurance Rate Map Program (NFIP) map and Flood Insurance Study report for the area subject to the Flood Protection Project. FEMA has acknowledged receipt of the LOMR application and has 90 days to conduct their review and approval of the LOMR once the application is deemed complete.

4. Water Supply

In October 2010, the City of St. Helena Water Supply Plan[3] was prepared as the analysis for water supply and demand as part of the General Plan EIR. The Water Supply Plan recommended several water supply strategies that the City could implement to facilitate the General Plan and Housing Element.

Following review of the Draft General Plan Update, the City Council decided to postpone certification of the General Plan Update EIR in order to further study water supply issues, specifically the safe yield of the City's water supply system. On December 14, 2010 the City Council appointed a Safe Yield Committee to ascertain the annual safe yield of the St. Helena potable water system. The report

[3] West Yost Associates, 2010. *City of St. Helena Water Supply Plan.*

drafted by the Safe Yield Committee concluded that based on current operating conditions, the annual safe yield of the St. Helena potable water supply system is estimated to be 1,950 acre feet (AF). In March 2011, the City Council accepted the report, approved its recommendations, and requested the committee to work on a revised system for declaring water emergencies. In October 2011, the Council adopted revisions to the City's ordinance regarding water shortage emergencies.

C. PROJECT OBJECTIVES

The Hunter Subdivision Project proposes to subdivide the 16.9-acre parcel to accommodate both single-family and multi-family residential development. Specifically, the project proponent proposes to:

1. Subdivide the site consistent with the City's General Plan and Zoning for the site to accommodate residential development.
2. Provide opportunities to develop a variety of housing types, including multi-family, single-family, and accessory granny units, affordable to a range of incomes including, very low, low and moderate-income households.
3. Assist the City to achieve the adopted Housing Element policies related to workforce and affordable housing and assist in meeting the City's RHNA.
4. Minimize traffic-related environmental impacts, such as noise, air quality and greenhouse gases by lowering commute patterns for St. Helena workers by providing more local housing opportunities.
5. Support alternative transportation by providing a pedestrian and bicycle link through St. Helena eventually connecting the regional Vine Trail from Calistoga to the Vallejo Ferry.
6. Exceed the City's green building ordinance and incorporate sustainable design features including water conservation measures, drought resistant landscaping with low flow watering systems, south and west side tree placement to reduce reliance on air conditioning units and pre-wiring for photovoltaic systems.
7. Implement the General Plan Circulation Element by completing the planned extensions of Adams Street and Starr Avenue.
8. Provide for increased property tax and other revenues to the City of St. Helena from residential construction on the project site.
9. Minimize City water use by continuing the utilization of an on-site water well for irrigation of project landscaped areas.

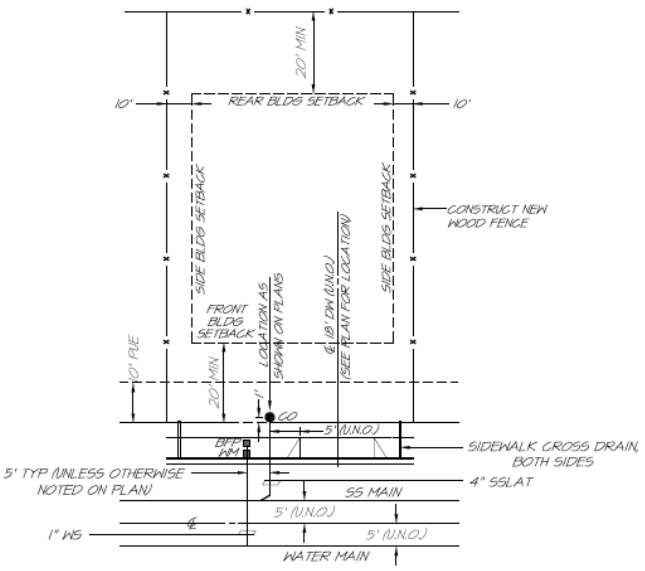
D. PROPOSED PROJECT CHARACTERISTICS

The proposed project would subdivide the 16.9-acre parcel into 51 single-family lots, a 3.4-acre parcel, and a 0.06-acre remainder parcel that would be non-buildable. The 51 single-family lots could be developed with up to 51 single-family market-rate housing units (one dwelling per lot) and accessory/granny units on 11 of the single-family lots that may be income-restricted. The multi-family parcel is anticipated to accommodate up to 25 income restricted workforce units. The proposed subdivision design is shown in Figure III-4.

The site's current MDR General Plan designation allows for a density range of 5.1 to 16.0 dwelling units/acre (du/acre) and a maximum yield of 270 dwelling units. The proposed 87 units result in a density of 5.1 du/acre, which is consistent with the low end of the permitted density range.

1. Subdivision Design

The proposed subdivision would extend Adams Street and Starr Avenue onto the project site, consistent with the Transportation and Circulation Element of the General Plan (1993 and Draft), as shown in Figure III-4. Access to the site would be via Adams Street from the terminus of the existing roadway to the west, with Adams Street ending in a stub out. The Starr Avenue extension would divide the site into two unequal sizes. The portion west of the Starr Avenue extension would include five single-family parcels and the 3.4-acre multi-family parcel. The portion of the project site west of Starr Avenue extension includes streets A, B, and C and the other 46 single-family parcels; it also includes the 0.06-acre remainder parcel.



TYPICAL LOT DETAIL
NOT TO SCALE

Two new local streets (Street A and Street B) are proposed to intersect with the extension of Starr Avenue and extend to the west end of the site. Street A would begin at Starr Avenue just south of its intersection with Adams Street. It then would continue for approximately 1,000 feet along the site's northern edge and would then turn 90 degrees and would then terminate at its intersection with Street B. Street B would begin at Starr Avenue approximately 200 feet south of the Starr Avenue/Street A intersection. Street B would then continue for

approximately 1,100 feet slightly beyond its intersection with Street A and would then intersect at a 90-degree angle with Street C. This street would continue for approximately 180 feet and would then terminate in a cul-de-sac. Single-family parcels would be located on the south side of Street A, and on both sides of Streets B, C and the Starr Avenue extension.

The single-family parcels would be typically rectangular and range in size between 7,000 and 8,000 square feet. A number of irregular shaped parcels would be at the eastern edge of the site and along the cul-de-sac. Most of these parcels would include more land area. The minimum parcel size would be 7,000 square feet and some of the larger parcels would contain more than 12,000 square feet.

Each parcel would have a minimum depth of 75 feet, and minimum width of 70 feet. The building pads shown within each lot would have a minimum 20-foot front and rear setback, and a 10-foot setback on the sides. The proposed lot sizes and setbacks are consistent with the MR zoning district development standards.

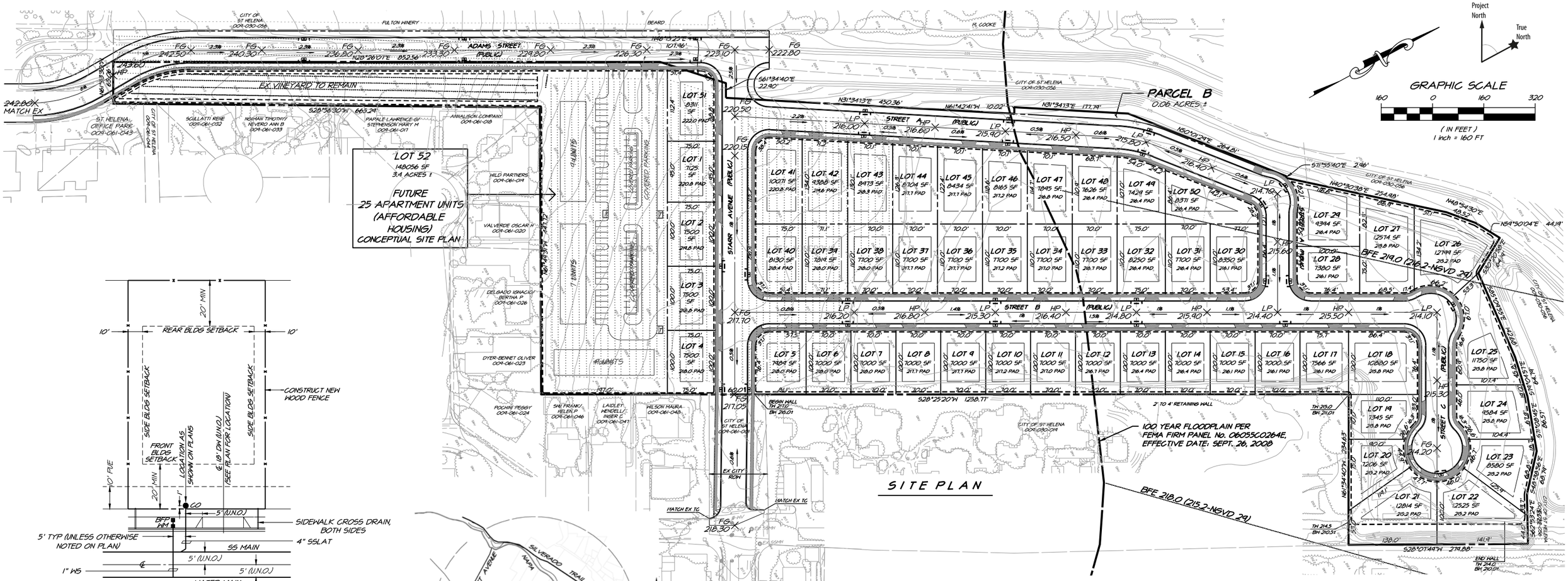
West of Starr Avenue there would be a multi-family residential lot and five single-family lots. The multi-family residential lot would be a “flag” lot (Lot 52) of approximately 3.4 acres, accessed off Adams Street, just west of its intersection with Starr Avenue. The single-family residential parcels would front Starr Avenue on the west side of the street. The portion of the site south of the proposed Adams Street extension consists of existing vineyards, which would be preserved. The multi-family housing will consist of 30,000 to 45,000 total square feet of building area, the configuration of which is not yet determined, plus covered and surface parking.

2. Infrastructure Improvements

A number of site and infrastructure improvements are proposed as part of the subdivision.

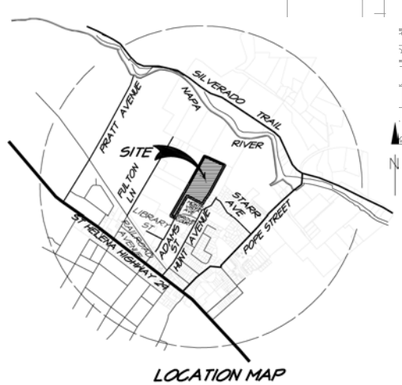
a. Grading and Erosion Control

The proposed site and infrastructure improvements would include some grading to create a gradual downward slope from west to east towards the existing Flood Protection Project detention basin. To level the site, the finish grade of most of the area east of Starr Avenue would be increased over the existing grade by the placement of approximately 1.5 to 2.5 feet of fill material; west of Starr Avenue the finish grade would be approximately 1 foot lower than the existing grade. The maximum depth of cut would be approximately 1.5 feet and the maximum depth of fill would be 5.0 feet. A retaining wall that would vary in height from 2.0 to 4.0 feet is proposed along the rear property line of Lots 5 through 22.



TYPICAL LOT DETAIL

NOT TO SCALE



LOCATION MAP

NOT TO SCALE

APPROXIMATE RAW EARTHWORK QUANTITIES*	
CUT	FILL
10,200 CY	24,500 CY

* DOES NOT INCLUDE COMPACTION AND CONSOLIDATION LOSSES OR TRENCH, PAD OR FOUNDATION SPOILS.

LEGEND

- CURB INLET SEDIMENT BARRIER
- FIBER ROLL SEDIMENT BARRIER
- EX TREE TO REMAIN
- EX TREE TO BE REMOVED

Source: Riechers Spence Associates, February 2012.

Figure III-4
Hunter Subdivision Project EIR
Tentative Subdivision and Grading Map

The estimated net grading quantity, as provided by the project applicant, is approximately 14,500 cubic yards of fill (10,200 cubic yards of cut, and 24,500 cubic yards of fill). This quantity does not include the spoils from the joint trench, roadways, curb and gutter, or foundations. Importing of some material, such as base rock, sand, and peat gravel that is used in the joint trenches, foundation and roadways would be required.

The following Post Construction Best Management Practices (BMPs) would be implemented as part of the project:

- Inlet labels 'Drain to River'
- Private Street sweeping
- Downspouts to landscape swales
- Vegetated swales
- Homeowner education on storm water pollution prevention
- Hydrodynamic oil, water, and solid separation.

b. Street Design

The roadway improvements for the project would include the construction of new interior streets on the site including the extension of Adams Street and Starr Avenue and Streets A, B, and C as shown on Figure III-4.

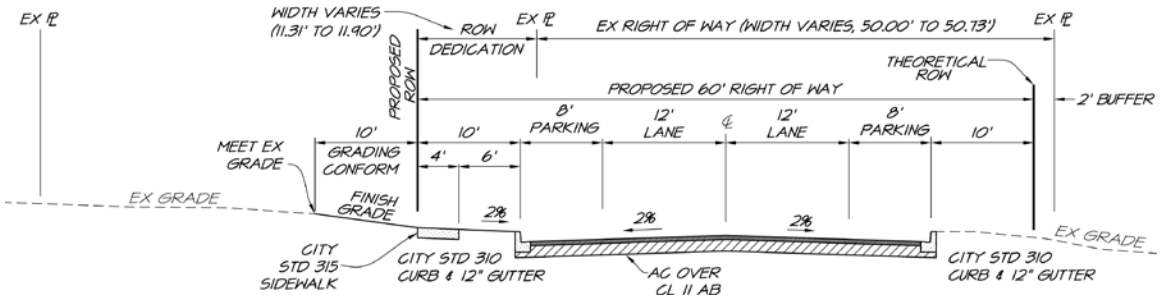
The proposed Adams Street extension is currently a city-owned right-of-way. A portion of the right-of-way would need to be transferred to the project applicant. City approval is also required to convert this parcel to a right-of-way and construct the extension of Adams Street as proposed in the project. The same process is required for the extension of Starr Avenue.

The proposed width of the extension of Adams Street and Starr Avenue is 60 feet, shown in Figure III-5, Street Sections, consistent with the City's minor residential street standard. Streets A, B, and C would be 56 feet wide and also include parking on both sides. Each of the street sections includes parking on both sides and 4-foot-wide sidewalks. The project would provide adequate access for pedestrian and bicycle movement within and through the project as well as support subsequent extensions to provide non-vehicular access, such as the Vine Trail, as per the General Plan.

Figure III-4 shows the layout of the internal streets and a conceptual access and on-site circulation and parking plan for the 25-unit workforce parcel (lot 52).

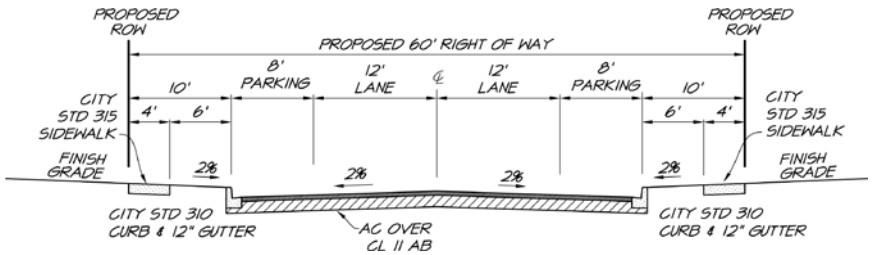
c. Utilities

The existing and proposed infrastructure necessary to serve the proposed project is described below. The proposed utility extensions are shown in Figure III-6.



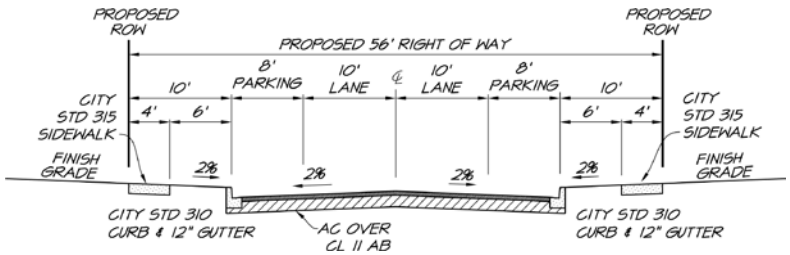
Adams Street Extension Section

Not to scale



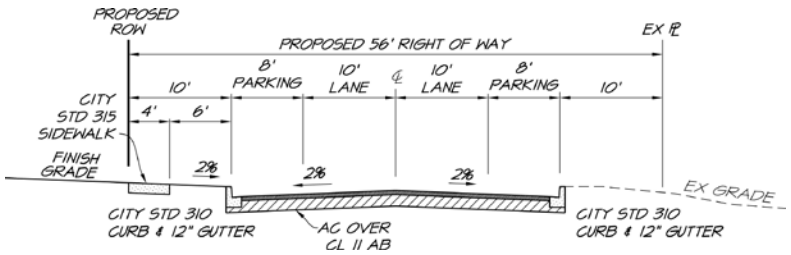
Starr Avenue Extension Section

Not to scale



Street B and Easterly Portion of Street A Section

Not to scale

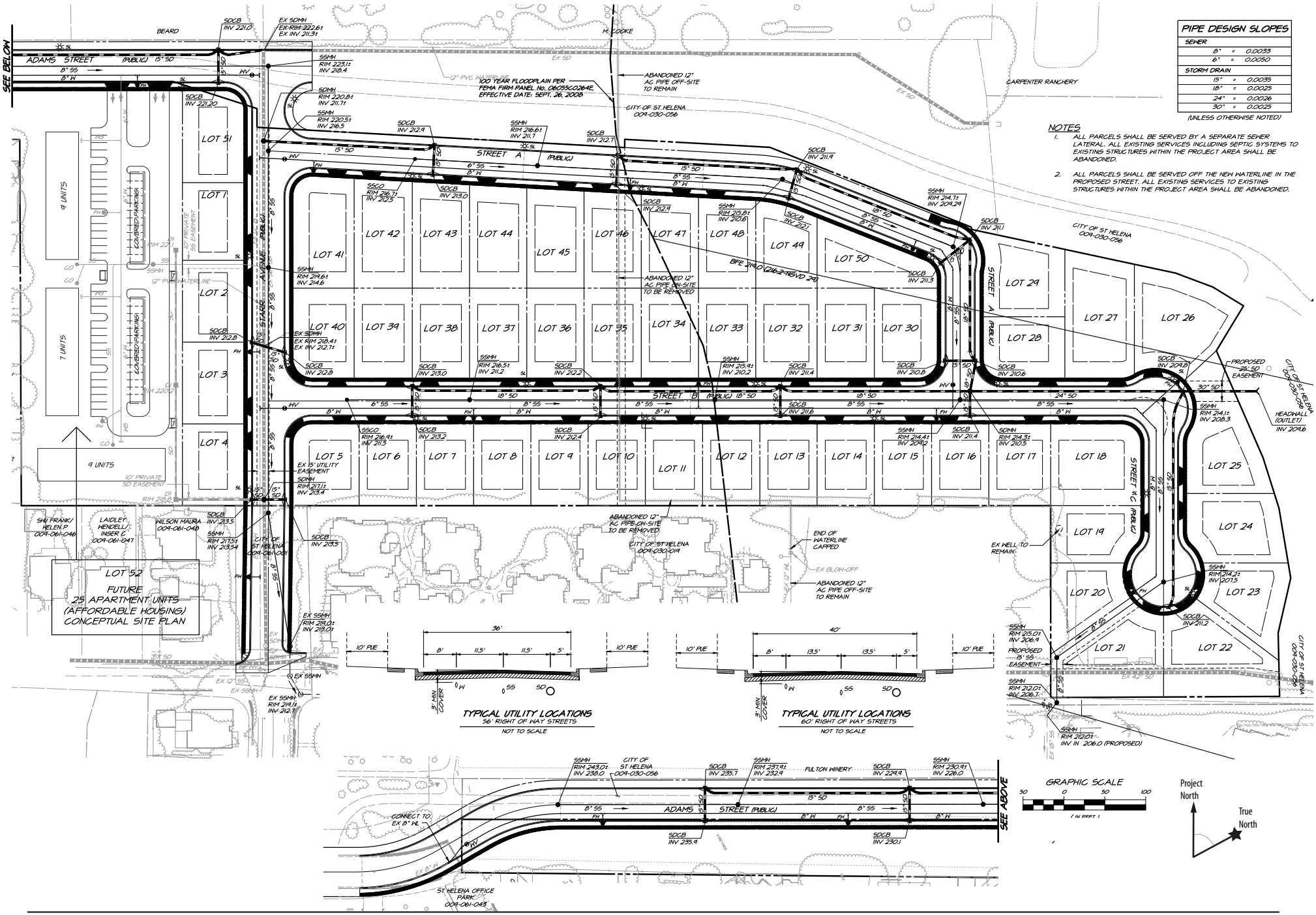


Street B Section

Not to scale

Source: Riechers Spence Associates, Nov 30, 2011.

Figure III-5
Hunter Subdivision Project EIR
Street Sections



Source: Riechers Spence Associates, Nov 30, 2011.

Figure III-6
Hunter Subdivision Project EIR
Utility Plan

(1) Storm Drainage System

There is existing storm drain infrastructure that may serve the site. To the southeast is the detention basin component of the flood project, the design of which contemplated future development of the Hunter property. There is an overflow storm drain pipe located in the Starr Avenue extension that may have some capacity for runoff from the site.

As shown in Figure III-6, the westerly portion of the project site is proposed to drain via gutter flow and storm drain pipes and discharge into the existing Starr Avenue storm drain at several different locations. The rest of the project is proposed to drain to the west via gutter flow and storm drain pipes and discharge into the existing detention basin. The City will require that all storm drain pipes shall be sized to accommodate a 10-year storm within the pipe and 100-year storm within the street section.

(2) Sanitary Sewer System

Wastewater flows from the western end of the project are proposed to drain into an existing public manhole at the corner of Starr and Hunt Avenue via new sanitary sewer pipes, as shown in Figure III-6. The area east of Starr Avenue, lower in elevation, is proposed to drain east through the project site via new sanitary sewer pipes, through Lot 21 within a public easement and into an existing public manhole on the adjacent parcel in the Vineyard Valley Mobile Home Park. The applicant would need to request permission from the City to access the Vineyard Valley Mobile Home Park manhole. All sanitary sewer pipes are sized to accommodate the project flows and designed at slopes to provide required self-cleaning velocities.

(3) Water System

There is an existing 12-inch underground public water main running through the project site within the Starr Avenue right-of-way as shown in Figure III-6. A new looped water main is proposed within Streets A and B that would connect to the existing water main at two locations. A new water main is also proposed within the extension of Adams Street to connect to the existing water main at the southwest end of the project site.

Fire hydrants and other appurtenances would be located to meet City standards pursuant to the City's standards.

An existing well near the southeastern end of the property is proposed to be maintained in place and used for irrigation of the project's exterior landscaping areas, pending City approval. The project would be designed not to exceed 0.4 AF/year/dwelling based on the installation of increasingly efficient and lower-water-using fixtures and appliances. For further detail on proposed project water demands, see Section IV.K Public Services, Recreation and Utilities.

d. Demolition

The proposed project would not require any demolition, other than the removal of a portion of the vineyards located outside of the panhandle area, since the remainder of the site is vacant. The project would however require grading as described in the earlier section.

e. Landscaping

The proposed project includes a Street Tree Plan, see Figure III-7. The proposed trees for planting are 24-inch box scarlet maple (*Acer Rubrum*), Chinese pistache (*Pistacia Chinensis*) and tulip tree (*Liriodendron Tulipifera*). Scarlet maples would be planted along the Adams Street extension to the intersection with Starr Avenue and along the Starr Avenue extension. On Street "A" Chinese pistache trees would be planted. Tulip trees would be planted on Street "B" and the cul-de-sac. A total of 170 trees are proposed to be planted, mostly in rows of two to five with 10 feet of separation from street lights. On the western edge of Starr Avenue the Scarlet Maples are proposed in a solid row of nine trees between Street "A" and Street "B". Sidewalk planters would have hydro seed native grasses and wild flowers between tree plantings.

3. Residential Units

At buildout, the project site could accommodate up to 87 dwelling units: 51 single-family units, 11 of which could include an accessory granny unit, and 25 multi-family units; however, no specific residential building designs are proposed as part of the Tentative Map.

Consistent with the requirements of the St. Helena's Zoning Ordinance MR district it is anticipated that the future development of these parcels would conform to the following development standards:

Maximum height for principal dwelling(s):	30 feet
Maximum height for an accessory structure or unit:	15 feet

The design of future buildings would be required to meet or exceed the standards and requirements of the MR district.

Over 41 percent of the units are anticipated to be affordable to very-low, low, and moderate-income workers of St. Helena. All 36 of the affordable units would be deed restricted for a minimum of 30 years to maintain affordability (per SB 1818).

Future building designs would be subject to approval by the City, which includes Design Review of proposed construction, including the exterior design and location of individual dwellings, landscaping and related features. The multi-family portion of the project could be constructed and managed by an affordable housing non-profit organization.

Source: Riechers Spence Associates & Landesign Group, July 2011.

Figure III-7
Hunter Subdivision Project EIR
Landscaping Plan

4. Phasing and Construction Schedule

Although a construction start date has not been determined, the applicant anticipates that the site improvements (including but not limited to overall grading and installation of roads water, sewer telecommunication, electrical and natural gas lines) for the project would be complete within 18 months after the approval of the project's entitlements and commencement of work. The site improvements would be completed in one phase starting with infrastructure construction immediately after the approval of the Final Map and related improvement plans. Work on the Final Map will begin immediately following certification of the EIR and approval of the Tentative Map.

The intent is to have the subdivision, landscape and infrastructure improvements completed within this 18-month time period.

Buildout of the project would be subject to the City's Growth Management System, which limits the issuance of non-income restricted building permits to nine units per year. In addition, the City of St. Helena has carry-over residential units available to residential projects that consist of a unit count that is at least 40 percent affordable. The proposed project meets this criteria and the applicant intends to apply for a portion of these carry-over allocations.

E. DISCRETIONARY ACTIONS

It is anticipated that this EIR will provide environmental review for all discretionary approvals and actions necessary for the proposed project. A number of permits and approvals would be required before the development of the project could proceed. As Lead Agency for the proposed project, the City of St. Helena would be responsible for the majority of approvals required for development. A list of required permits and approvals that may be required by the City and other agencies includes, without limitation, those provided in Table III-1.

1. City of St. Helena

Key discretionary and ministerial actions required by the City of St. Helena are outlined in Table III-1.

TABLE III-1 REQUIRED DISCRETIONARY AND MINISTERIAL PERMITS AND APPROVALS

Lead Agency	Permit/Approval
City of St. Helena	**Discretionary:** ▪ Tentative Map Approval ▪ Design Review ▪ Final Subdivision Map **Ministerial:** ▪ Encroachment Permit ▪ Grading and Building Permits ▪ Water and Sewer Connections ▪ Other Administrative permits such as temporary and permanent encroachments, traffic management/construction parking, etc., and approvals would be required from other City departments
State Water Resources Control Board	▪ Notice of Intent

Note: No other discretionary permits are anticipated to be required by other jurisdictions or agencies.

IV. SETTING, IMPACTS, AND MITIGATION MEASURES

This chapter contains an analysis of the environmental topics determined to be potentially significant in the Initial Study (see Appendix A) relevant to the proposed Hunter Subdivision Project ("project"). Sections IV.A through IV.L of this chapter describe the existing setting, the potential impacts that could result from implementation and buildout of the project, and mitigation measures designed to reduce significant impacts of the project to a less-than-significant level.

The following provides an overview of the scope of the analysis included in this chapter, organization of the sections, and the methods for determining what impacts are significant.

A. ENVIRONMENTAL TOPICS

The following environmental topics are analyzed in this chapter:

A. Aesthetic Resources
B. Agricultural and Forest Resources
C. Air Quality
D. Biological Resources
E. Cultural and Paleontological Resources
F. Geology, Soils, and Seismicity
G. Greenhouse Gas Emissions
H. Hazards and Public Safety
I. Hydrology and Water Quality
J. Noise and Vibration
K. Public Services, Recreation, and Utilities
L. Traffic and Transportation

A brief discussion of the environmental topics addressed in the Initial Study (Appendix A) for the project is included in Chapter VI, CEQA-Required Assessment Conclusions, and Cumulative Impacts under the sub-heading VI.A, Effects Found Not to Be Significant. These topics include: Land Use and Planning; Mineral Resources; and Population and Housing.

B. FORMAT OF TOPIC SECTIONS

Each environmental topic section generally includes two main subsections: (1) Setting; and (2) Impacts (construction, project, and cumulative) and Mitigation Measures. Identified significant impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality). The following abbreviations are used for individual topics:

AES:	Aesthetic Resources
AGRI:	Agricultural and Forest Resources
AIR:	Air Quality
BIO:	Biological Resources
CULT:	Cultural and Paleontological Resources
GEO:	Geology, Soils, and Seismicity
GHG:	Greenhouse Gas Emissions
HAZ:	Hazards and Public Safety
HYD:	Hydrology and Water Quality
NOISE:	Noise and Vibration
SVCS:	Public Services, Recreation, and Utilities
TRAF:	Traffic and Transportation

The following notations are provided after each identified significant impact and mitigation measure:

SU = Significant and Unavoidable
S = Significant
LTS = Less than Significant

These notations indicate the significance of the impact with and without mitigation.

C. DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[1] Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant.

The criteria of significance identified in this EIR are based on the criteria the City utilized in the Draft General Plan EIR and other recent project EIRs. The significance thresholds are intended to implement and supplement provisions in

[1] Public Resources Code Section 21068.

CEQA Guidelines for determining the significance of environmental effects, including Sections 15064, 15064.5, 15065, 15382, and Appendix G.

A summary table of the project's relationship to each significance criteria is provided at the beginning of the impact and mitigation measures subsection for each topic.

A. AESTHETIC RESOURCES

This section describes the existing visual setting of the Hunter Subdivision Project and identifies the potential impacts of the project on the visual and aesthetic resources in the vicinity of the project site.

The section is based on: (1) field surveys of the project site that were conducted in the fall and winter of 2011; (2) a review of the data provided by the City and the project applicant, including aerial photographs, the Tentative Map, and planning documents; and (3) cross section views through the site of the proposed project.

Cross sections of the site, based on the Tentative Map provided by the project applicant, were prepared to provide context for understanding the proposed project site and the potential development envelope. The cross sections are intended to convey a realistic impression of the project in terms of future building location, scale and massing based on the details included in the Tentative Map. However, because the project under review is a subdivision without specific designs for proposed structures, the sections do not portray the exact architectural design of the structures on the project site.

The analysis of the proposed project is focused on the aspects of aesthetics as defined in the significance criteria, including impacts to the visual character, scenic vistas scenic resources within state scenic highways and impacts related to light and glare, and conformance with policies. The proposed project would be required to comply with the City of St. Helena Municipal Code, and the goals and policies of the City of St. Helena's General Plan in order to reduce the impact of the project to visual character, vistas, and/or scenic resources, and light and glare.

1. Setting

The elements that contribute to the assessment of existing aesthetic conditions include those for public scenic vistas and resources available at and around the site, state scenic highways, visual character, or quality within the project and its vicinity, and day and nighttime views in the area. This section describes these elements, including the visual character of the project site and its surrounding area, and views in the vicinity of the site.

a. Scenic Vistas and Resources

The City of St. Helena is surrounded by the undeveloped, wooded foothills of the Mayacamas and Howell mountains on the west and east, respectively. These foothills are prominently visible from many locations in the flatland areas of the city, especially from streets with an east-west orientation in the center of the city. The project site is located three blocks east of the downtown center.

Locations of key viewpoints in the project vicinity are depicted in Figure IV.A-1, and photos from these representative viewpoints are shown in Figures IV.A-2a through 2d and Figures 3a through 3d.

A view is defined as the ability to see something from a particular place, buildings, and natural elements such as trees or geologic features. Features such as hills or rock outcroppings guide lines of sight and control view directions available to pedestrians and motorists. A view corridor is defined as a line of sight from a specific viewpoint toward an object of significance. A public view corridor is a line of site in an area in which views are available from publicly accessible places, such as city streets, parks, and other public spaces.

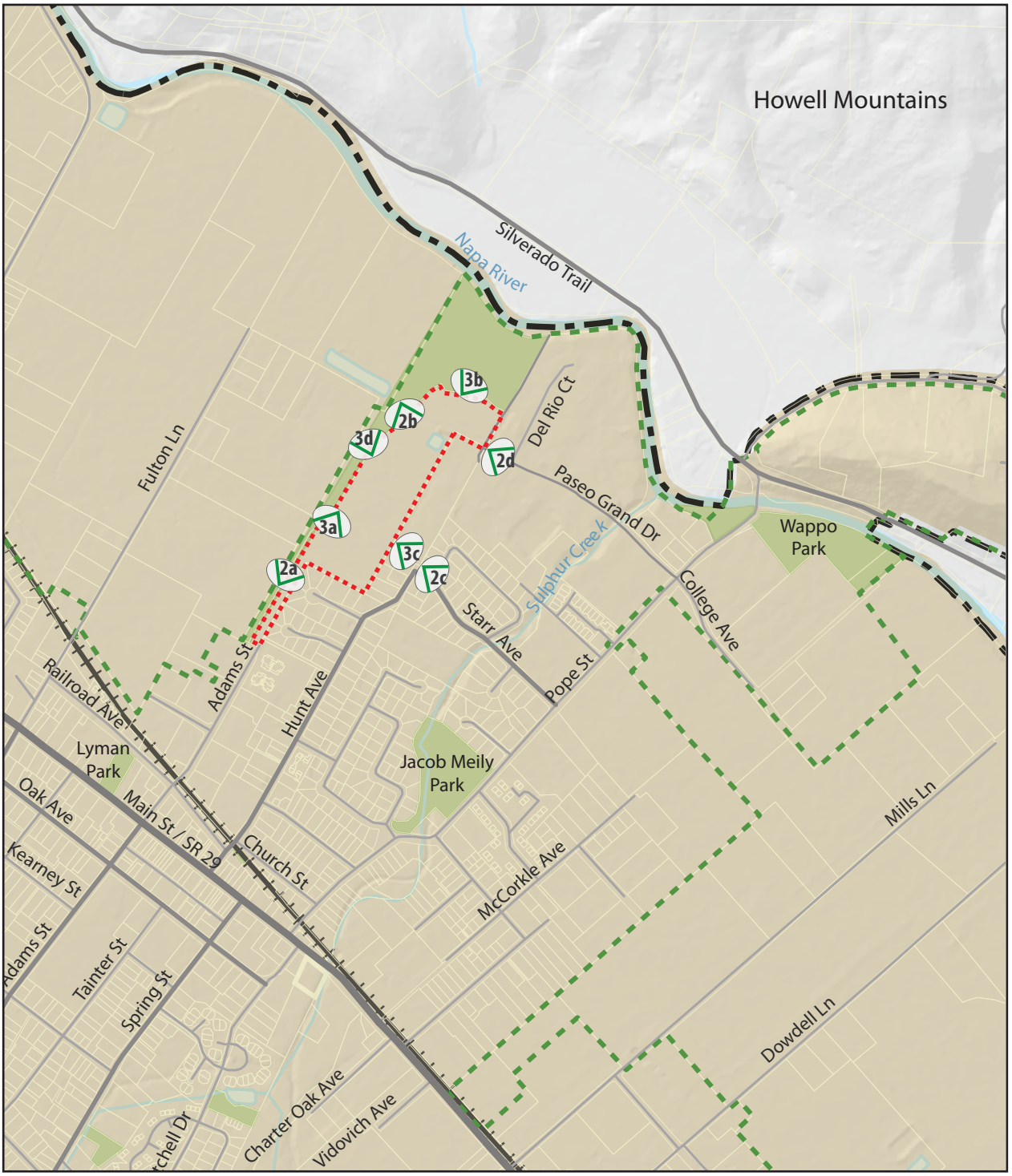
For purposes of this analysis, the following existing and proposed policies from the 1993 General Plan Community Design Element and the Draft General Plan Update Community Design Element have been used to define vistas:

Policy 4.5.1 *"The sense of a strong connection to the surrounding agricultural open space and hillsides must be preserved in the future. Views of vineyard, hillsides, creeks, and major landscape features should be maintained."*

Policy CD5.1 "*Preserve the visual and physical connection to agriculture by protecting views from streets, parks, and open spaces to vineyards, agriculture, and hillsides. Where new streets are extended adjacent to agriculture, encourage hillside and vineyard views by maintaining agricultural activities at the road edge. Existing east and west entries should be maintained in their current appearance, protecting and improving views of vineyards and the surrounding hillsides wherever possible."*

Due to the relatively flat topography of the project site, the key viewpoints are relatively close to the site and serve as the primary viewpoints for scenic vistas through the site as well. As shown in Figure IV.A-1 and IV.A-2a through 2d, the scenic vistas in the project vicinity include:

1. **The entrance to the site on Adams Street.** A view of Mt. St. Helena is shown beyond the site towards the northeast, and the Mayacamas Mountains can be seen clearly towards the west from this scenic vista location (see Figures IV.A-2a).
2. **The existing trail along the Adams Street extension going east towards the Napa River.** A view of the Howell Mountains and Mt. St. Helena is shown to the northeast and east of the trail respectively; vineyards to the north of the site; and the Mayacamas Mountains to the west, seen clearly through the site. Views of the Vineyard Valley Mobile Home Park and Hunt's Grove residential development are observed beyond the site's southern edge (see Figure IV.A-2b).



Source: City of St. Helena Draft General Plan 2030.

0 500 1000 Feet

City Limits

Urban Limit Line

Project Site

Key Viewpoint Locations

True North

Project North

Figure IV.A-1
Hunter Subdivision Project EIR
Key Viewpoints

Figure IV.A-2a View looking west from site, towards Downtown from the proposed Adams Street extension. The Mayacamas Mountains can be seen clearly in the distance.

Figure IV.A-2b View northeast from the proposed Adams Street extension, showing the Howell Mountain in the distance beyond the trail and vineyards.

Photo Source: Urban Planning Partners, November 2011.

Figure IV.A-2
Hunter Subdivision Project EIR
Scenic Vistas

Figure IV.A-2c View looking north through the site at the intersection of Hunt Avenue and Starr Avenue. The scenic vista has a clear view of the Mayacamas Mountains in the distance.

Figure IV.A-2d View looking north through the site from the Vineyard Valley Mobile Home Park [intersection of Paseo Grand Drive and Del Rio Court (private streets)]. This scenic vista has a view of Mt. St. Helena towards the east of the site beyond the landscaping and open space at the Napa River.

Photo Source: Urban Planning Partners, November 2011, January 2012.

Figure IV.A-2 *(continued)*
Hunter Subdivision Project EIR
Scenic Vistas

3. **The intersection of Hunt Avenue and Starr Avenue.** A view of the vineyards is shown along the northern edge of the site, and the Howell Mountains further north in the distance (see Figure IV.A-2c).
4. **The intersection of Paseo Grande Drive and Del Rio Court.** This intersection includes a view of the site and landscaping along the Napa River and the Howell Mountains beyond (see Figure IV.A-2d).

Views of downtown St. Helena, Main Street, or the Napa River are not visible directly from the project site. However, views of Mt. St. Helena, the Howell Mountains and the Mayacamas Mountains are easily observed beyond the east, northeastern and western directions from the site.

b. Scenic Highways

The City of St. Helena's California Scenic Highway Program designates the State Route 29 (SR 29) through all of Napa County as "eligible for designation as a scenic highway"; however it has not been formally designated (California Department of Transportation 2010). The proposed project is located three blocks east from SR 29 and is not visible to motorists that traverse this highway.

c. Visual Character

The visual character of the site and its vicinity is described below.

(1) Project Site

The project site is located three blocks east of Main Street/State Route 29 (SR 29), the major thoroughfare in the city, and the downtown core of St. Helena. Accessed from the eastern extension of Adams Street or northern extension of Starr Avenue, the site is an undeveloped property, and approximately 40 percent of it is cultivated with vineyards. There is no other vegetation on the site.

The site is flanked by existing residential areas along its western and southern edges, and open space and vineyards on the northern and eastern edges. The site is generally flat, with the ground level sloping gradually from west to east towards the existing flood control project detention basin. Figure IV.A-3 (3a through 3d) shows views of and from the project site.

(2) Project Vicinity

Some predominant land uses in and around the project site include single-family and multi-family residential uses including a mobile-home development, some office and commercial uses and vineyards. Existing structures/uses observed in the area are fairly typical with one- and two-story structures as one drives along Adams Street from the Downtown towards the site. Building setbacks along Adams Street vary from no setback to setbacks that have parking areas in the front of the building. The views from east of Adams Street and the site

Figure IV.A-3a View looking east from the levee access road, showing the current state of the project site with existing vineyards along its west side.

Figure IV.A-3b View looking west from the eastern edge of site. The site is relatively flat, and undeveloped. One- and two-story residential development flank the western, southwestern, and southern edges of the site. Views of the hills are seen in the far distance.

Photo Source: Urban Planning Partners, November 2011.

Figure IV.A-3
Hunter Subdivision Project EIR
Views of the Site

Figure IV.A-3c View looking north from the intersection of Hunt Avenue and Starr Avenue; the location of the proposed Starr Avenue extension.

Figure IV.A-3d View of the site looking southwest from the proposed Adams Street extension. One- to two-story residential development is the primary view beyond the site.

Photo Source: Urban Planning Partners, August 2011, November 2011.

Figure IV.A-3 *(continued)*
Hunter Subdivision Project EIR
Views of the Site

are devoid of visible development, with open space and vineyards prevalent along the north and northeastern edges. Distant views of the various mountains in the vicinity are available from roads and walkways in the surrounding area dependent on intervening foliage and development. The photos in Figures IV.A-2 (2a through 2d) show views of the surrounding area from key viewpoints around the site.

Currently, there is no vegetation or trees along the Adams Street extension which is proposed to be the major street for site access. Along the western and southern edges of the site, there is vegetation that includes mature trees ranging from 10 feet to 40 feet high around the Vineyard Valley Mobile Home Park and Hunt's Grove residential development. Much of the view of these developments from the project site is screened by this vegetation. The Napa River, located east of the site, is screened by vegetation consisting of mature trees ranging 10 feet to 40 feet in height.

Figure IV.A-4 View of the site looking southeast from the proposed Adams Street extension towards the Napa River. The primary views beyond the site consist of the vegetation along the River, and the hills beyond it.

Figure IV.A-4 shows the view as seen by a pedestrian walking east on the proposed Adams Street extension towards the Napa River, looking southeast towards the site. The primary view includes that of the project site, which is relatively flat, and the distant view of the vegetation surrounding the Napa River. As seen in the top left of the figure, some development can be observed on the hills in the far distance. The substation that is located in the open space beyond the site next to the detention basin is also seen towards the right of the picture.

Figure IV.A-5 View of the site looking south from the proposed Adams Street extension towards the proposed Starr Avenue extension. One- to two-story residential development along with vegetation is the primary view beyond the site.

Figure IV.A-5 shows the view as seen by a pedestrian turning into the proposed Starr Avenue extension from the proposed Adams Street extension. Since there is no existing vegetation on Adams Street, the

pedestrian has intermittent views of the Hunt's Grove residential development at the end of the Starr Avenue extension, covered by some vegetation. The vegetation seen along that edge includes mature trees from 10 feet to 40 feet in height.

d. Lighting

The streets surrounding the project site, Adams Street and Starr Avenue, are landscaped with sidewalks, street trees and walkways for access to the residential development. Streetlights are placed at regular intervals along both Adams Street and Starr Avenue up until the project site, illuminating the two access points during the evening hours. Currently, the northern and eastern edges of the site do not have any lighting.

e. Regulatory Setting

The main regulatory documents that are applicable to aesthetics and visual quality within and around the project site are the Community Design Element and the Open Space and Conservation Element of the General Plan; the St. Helena Municipal Code; the California Energy Commission Lighting Standards and the California Scenic Highway Program.

(1) Existing 1993 General Plan

The 1993 Community Design Element is intended to complement the Land Use and Growth Management element for the City of St. Helena, by setting forth a vision of the form, character, and appearance to the community. The Open Space and Conservation Element from the current 1993 General Plan promotes the management and preservation of open space resources as a strategy to prevent the destruction, degradation, or neglect of the community's natural resources in St. Helena. The following policies are relevant to aesthetic and visual resource concerns associated with the proposed project:

COMMUNITY DESIGN
General
POLICY 4.3.4 Strengthen community identity by appropriate building design, size, and site landscaping.
POLICY 4.3.5 Require future residential development to conform to the pattern and density of older, neighboring areas of town in order to complement existing town character and ensure that densities are high enough to protect against unnecessary incursion into vineyard agricultural areas.
Residential Land Use Character
POLICY 4.3.23 Set residential densities throughout St. Helena at levels that will ensure that minimum encroachment on productive vineyard land or open space will occur during the life of the plan.
POLICY 4.3.24 Encourage higher density residential development near the commercial core to provide convenient pedestrian access to shopping and services. Ensure that higher density projects are similar in design and scale to adjacent single family neighborhoods.

COMMUNITY DESIGN
POLICY 4.3.25 Within the primary urban area of St. Helena, encourage variety in housing types and density consistent with those found in the older neighborhoods of town. Encourage varying lot widths and configuration, but limit the allowable building envelope by parcel size to avoid overbuilt conditions.
POLICY 4.3.26 Encourage residential building siting and design that is similar to that found in the older neighborhoods in town. In these areas consistent setbacks, porches and generously landscaped front yards add to community enjoyment by all. Restrict location of driveways and garages to minimize their visual impact on the street.
POLICY 4.3.27 Encourage large specimen street trees and generous landscaping to shade homes and the street and to link various neighborhoods.
POLICY 4.3.28 Limit residential development that backs up to vineyards and thereby blocks views of those vineyards by passersby.
Street Patterns and Layout
POLICY 4.4.1 Use the grid pattern of street layout as the template for future developing areas. Streets should be straight, should meet at right angles, and cul-de-sacs and a suburban pattern should be avoided.
POLICY 4.4.2 When reviewing development proposals in areas not already served by a system of streets, City staff shall ensure that proposed development is sited in such a manner that it will not obstruct the logical extension of existing streets and infrastructure, or the expansion of the City's grid-like pattern of streets into newly developing areas. As with existing street patterns, new extensions of the city grid need not be rigid in their dimensions and layout, but should be evaluated on their contribution to the formation of a logical, interconnected system of streets that facilitates the safe and efficient flow of pedestrian, bicycle, and vehicular traffic, and establishes an attractive neighborhood environment. Staff can consider variations to the logical extension of existing streets if the project proponent can demonstrate that safety, aesthetics, topography, or other factors make such an extension ineffective or undesirable, or that such an extension would cause the landowner undue hardship.
POLICY 4.4.2 Street widths should be the minimum adequate for two-way traffic and parking. Narrower street widths as found in the older parts of St. Helena contribute to a more intimate small town scale and discourage speeding.
POLICY 4.4.3 Driveways and garages should be as unobtrusive as possible, with garages preferably located at the rear of the lot.
POLICY 4.4.4 Where streets are at the edge of the community, adjacent to vineyards, development should only occur on one side, leaving open views to the agricultural lands and hillsides.
Open Space
POLICY 4.5.1 The sense of a strong connection to the surrounding agricultural open space and hillsides must be preserved in the future. Views of vineyard, hillsides, creeks and major landscape features should be maintained.
POLICY 4.5.2 Open space should be brought into the community wherever possible as a reminder of the natural setting of the community. Landscaping of residential areas should be generously oriented toward the enjoyment of the passerby. Street tree planting programs shall be pursued throughout the city to provide shade, a special character, and pedestrian comfort. Vineyard plantings within residential and commercial areas is encouraged.
Edges and Views
POLICY 4.6.1 Retain key undeveloped open space areas where views to the vineyard and hills can be maintained. Require that these areas be planted in vines or other low vegetation.
POLICY 4.6.2 Discourage the use of cul-de-sacs. Where cul-de-sacs are necessary, do not allow houses to block views out to the vineyards. View corridors out from the ends of streets should be preserved.
POLICY 4.6.3 Use streets to form the edge of the developed community. Maintain the edge fronting the vineyards as permanently undeveloped so that views of vineyards and beyond can be enjoyed by the general populace. Orient lots facing across the street to orient toward this view.

COMMUNITY DESIGN
Entrances
POLICY 4.7.3 The new eastern entry via the Adams extension should be planned to maximize open space and vineyard views. Where possible, vineyards should be maintained up to the road edge. Residential development should front on the road with sufficient lot depth to allow a generous setback for sound and privacy. Large specimen street trees should be planted in residential areas to mitigate the scale of the street and encourage pedestrian and bicycle movement
POLICY 4.7.4 Existing east and west entries should be maintained in their current appearance, protecting views of vineyards and the surrounding hillsides wherever possible.
OPEN SPACE AND CONSERVATION
Outdoor Recreation
POLICY 6.4.3 Ensure convenient public access between developed areas and stream corridors by providing access at frequent intervals.
POLICY 6.4.4 Ensure adequate access to open space areas for maintenance and management purposes.
Preservation and Provision of Trees
POLICY 6.4.11 Integrate existing significant trees into future development
POLICY 6.4.12 Require replacement trees where existing significant trees cannot be saved
POLICY 6.4.13 Require street trees as a condition of new development.

(2) Draft General Plan Update

The Community Design Element from the Draft General Plan Update is intended to complement the Land Use and Growth Management Element for the City of St. Helena, by setting forth a vision of the form, character, and appearance of the community. The draft Open Space and Conservation Element from the Draft General Plan Update presents a framework for governing future decisions about how St. Helena will sustain a healthy network of open space and natural resources for its residents, as well as future generations. It aims to protect, maintain, and enhance St. Helena's natural resources and open spaces, while balancing current community resource needs with conservation initiatives to benefit the common good. The following objectives and policies are relevant to aesthetic and visual resource concerns associated with the proposed project:

COMMUNITY DESIGN
High Quality and Sustainable Design
CD1.8 Require, to the extent feasible, that all new development include underground utilities to minimize their negative visual impact.
Residential Neighborhoods
CD3.1 Limit building envelope sizes and require adequate side and rear setbacks to preserve the character of existing residential areas and to avoid overbuilt lots. Require future development to conform to the pattern and density of older, neighboring areas of town in order to complement existing town character and ensure that densities are high enough to protect against unnecessary incursion into vineyard agricultural areas.

COMMUNITY DESIGN
CD3.3 Encourage the use of landscaping and tree plantings as buffers between sidewalks and residential uses. Discourage the removal of existing trees. Support the adoption of a more comprehensive tree ordinance.
CD3.4 Ensure safe bicycle and pedestrian-friendly character on all residential streets. Consider retrofitting existing wide residential streets, such as Starr Avenue, with landscaped medians, wide sidewalks and adjacent Class I pedestrian and bicycle trails.
CD3.E Require new development to include landscaping and street trees.
Gateways, Edges, and Views
CD5.1 Preserve the visual and physical connection to agriculture by protecting views from streets, parks and open spaces to vineyards, agriculture and hillsides. Where new streets are extended adjacent to agriculture, encourage hillside and vineyard views by maintaining agricultural activities at the road edge. Existing east and west entries should be maintained in their current appearance, protecting and improving views of vineyards and the surrounding hillsides wherever possible.
CD5.2 Use public streets or pathways to form the edge of developed areas, allowing views of open space from streets.
Street Pattern and Layout
CD6.1 Ensure a connected street system that maximizes pedestrian and bicycle connectivity.
OPEN SPACE AND CONSERVATION
Healthy Living Environment
OS4.1 Protect and enhance tree resources in developed and undeveloped areas. Efforts may include: adequate maintenance of street trees; requiring replacement trees where existing significant trees cannot be saved; and requiring street trees as a condition of new development.

(3) St. Helena Design Review

Chapter 17.164 of the St. Helena Zoning Ordinance addresses requirements for Design Review. The stated purpose of this process is the following (City of St. Helena, 2010):

- To promote those qualities in the environment which bring value to the community;
- To foster the attractiveness and functional utility of the community as a place to live and work;
- To preserve the character and quality of our heritage by maintaining the integrity of those areas which have a discernible character or are of special historic significance;
- To protect certain public investments in the area;
- To encourage where appropriate, a mix of uses within permissible use zones; and
- To raise the level of community expectations for the quality of its environment.

Design Review applies to any new development as well as the modification of the exterior of any structure. For example, after a Tentative Subdivision Map is approved, building plans for individual residential lots may be submitted. Each residential unit would undergo Design Review.

(4) California Energy Commission Lighting Standards

In November 2003, the California Energy Commission adopted changes to Title 24 (Building Energy Efficiency Standards) regarding outdoor lighting. These new standards addressed both reduced energy consumption and reduced glare from outdoor lighting. The standards vary by "lighting zone." Zone 1 refers to parks, recreation areas, and wildlife preserves. Zone 2 refers to rural areas, and Zone 3 refers to urban areas. Lighting Zone 4 is a special use district that may be adopted by a local government where high ambient lighting is permissible. Local jurisdictions can designate special neighborhoods as a different lighting zone when appropriate. For example, a special commercial district may be designated Lighting Zone 3 in a rural area. St. Helena would be considered a rural area because it is not identified by the U.S. Census as an urban area. The project site would be required to adhere to the standards in Zone 2, as per the Standards.

(5) Scenic Highways

SR 29 through all of Napa County is shown as "eligible for designation as a scenic highway"; however, it has not been formally designated.[1] The existing St. Helena General Plan does not designate any St. Helena roadways as scenic roads.

2. Impacts and Mitigation Measures

This section discusses potential impacts on aesthetic resources that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.A-1.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on aesthetic resources and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to aesthetic resources and a summary of comments submitted during the scoping period relevant to the scope of the analysis is also provided.

[1] California Department of Transportation, 2010

TABLE IV.A-1 AESTHETIC IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Have a substantial adverse effect on a scenic vista?	LTS (see page 80)
▪ Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	LTS (see page 80)
▪ Substantially degrade the existing visual character or quality of the site and its surroundings?	LTS (see page 81)
▪ Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LTS with Mitigation (see Impact AES-1 on page 86)

Source: Urban Planning Partners, 2012.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact on visual resources if it would:

- Have a substantial adverse effect on a public scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, located within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area;

This document will analyze the impact of the proposed project based on these significance criteria.

(2) Initial Study Findings

An Initial Study for the project was completed in June, 2011. The Initial Study determined that the project would have a potentially significant or less-than-significant impact with regard to all of the above criteria. As a result, the project is analyzed below against all of the criteria.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 and at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

Comments concerning aesthetic resources were related to effect of light from the project on the nighttime sky. Light and glare from the project is analyzed below.

b. Less-than-Significant Aesthetic Resources Impacts

The following discussion describes the less-than-significant impacts to aesthetic resources that would result from implementation of the proposed project.

(1) Scenic Vistas

The St. Helena General Plan states that the City's most significant natural resources are located in two areas; along its stream corridors and in the wooded hillsides to the east and west of the City.[2] The General Plan does not identify a public scenic vista within the project site or immediately adjacent to the project site, nor are any scenic vistas, parks, or public gathering places located on the site. Due to the level topography of the City, barring some hillside development, views within St. Helena are generally of adjacent development or adjacent agricultural land or open space. Given the mix of urban and rural development and the relatively flat topography of the area surrounding the project site, public scenic vistas that could be impacted by the proposed project are from the residential streets around the project site and from the pedestrian trail along the northern edge of the site. From the residential streets there would be views of the distant hills intermittently blocked with the new residences. From the trail there would be direct views of the proposed new residences.

The General Plan and the Zoning Ordinance have both designated the site for medium-density residential development. The proposed one- to two-story residential structures may slightly decrease the amount of hillside visible by travelers at the public intersection of Starr Avenue and Hunt Avenue (see Figure IV.A-2c), and at the intersection of Paseo Grand Drive and Del Rio Court (see Figure IV.A-2d); but the scenic vistas available beyond the site would be still be visible after development. At no point would hillside views from public viewpoints be entirely blocked by the project. As a result, the introduction of the proposed project would not significantly alter these views, and the project would not have a substantial adverse effect on a public scenic vista.

(2) Scenic Highway

As discussed earlier, SR 29 through all of Napa County is shown as "eligible for designation as a scenic highway"; however, it has not been formally designated.[3]

[2] St. Helena, City of, 1993. *General Plan, Open Space and Conservation Element.*

[3] California Department of Transportation, 2010.

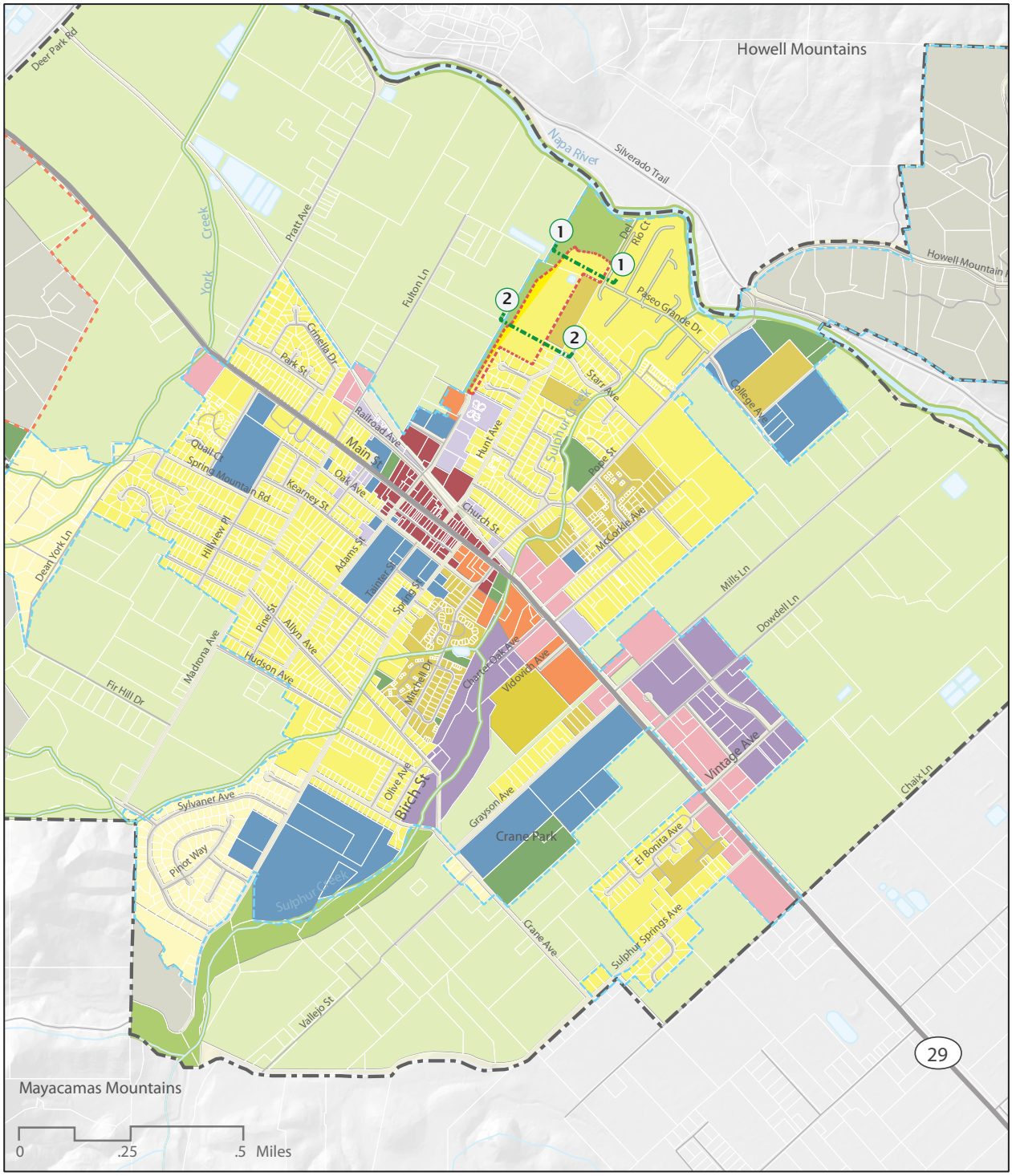
Figure IV.A-6 shows a view of Adams Street from Main Street/SR 29. The proposed project site is located three blocks east of SR 29, and is not directly visible to motorists that traverse this highway. The proposed project would develop the vacant site with new residential development, which would be approved via design review before construction. As per St. Helena's Municipal Code, the height allowed in the MR district would be a maximum of 30 feet. Any proposed development of this height would not be visible from SR 29, and the distant views of the hills for motorists traveling northbound would remain visible. For these reasons, the proposed project would not substantially damage scenic resources such as trees, designated historic buildings, rock outcrops or other resources from SR 29 and therefore, this impact is less than significant.

Figure IV.A-6 View of the Adams Street from Main Street/SR 29 looking towards the site. The project site is not directly visible to motorists.

(3) Visual Character

The development of the Hunter property site would change the visual character of the project area. Implementation of the proposed project would ultimately result in the development of single-family and multi-family residences on the project site; similar in scale and form to the residential development around the site and in St. Helena. However, the project site is largely undeveloped, with agricultural uses such as vineyards composing some of the current visual character. As a result, there would be a significant impact on the visual character of the site.

Figure IV.A-8 presents cross sections of the project site, the location of which are identified in Figure IV.A-7. As summarized from these cross sections, the new residential development would appear prominently across the existing residential development along the southern edge of the site. In relationship to surrounding development, the height of the new development will be somewhat higher in scale when compared to existing development due to the proposed grading as indicated in the sections. For example, due to the slope of the site of 4 feet from north to south, the finished grade at the southern edge of the site near Vineyard Valley Mobile Home Park would be approximately 4 feet higher than the ground level of the Vineyard Valley Mobile Home Park and Hunts Grove. This is further explained below in the discussion of the cross sections through the site.



Legend

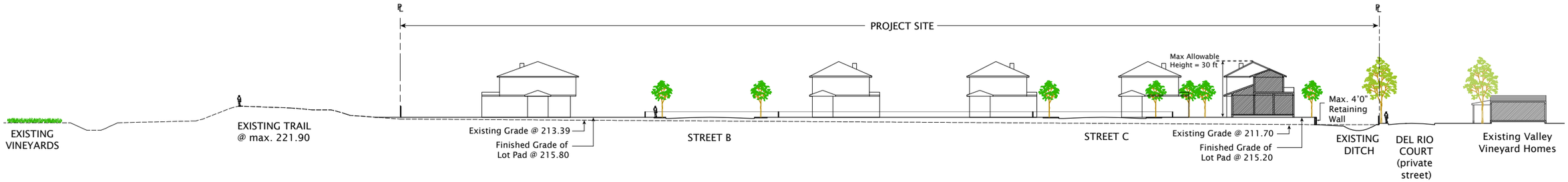
- Project Site
- City Limits
- Urban Limit Line
- Low Density Residential
- Medium Density Residential
- Higher Density Residential
- Cross Section Locations
- Central Business
- Service Commercial
- Mixed-Use
- Business Professional and Office
- Industrial
- Woodland and Watershed
- Agriculture
- Open Space
- Parks and Recreation
- Public/Quasi-Public
- Waterbodies

True North

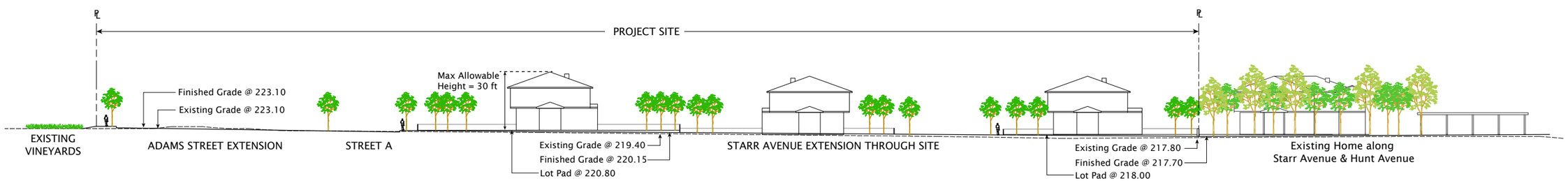
Project North

Source: City of St. Helena Draft General Plan 2030.

Figure IV.A-7
Hunter Subdivision Project EIR
Locations for Cross Sections



PROJECTED SITE SECTION 1-1



PROJECTED SITE SECTION 2-2

Prepared by: Urban Planning Partners, March 2012.

Figure IV.A-8
Hunter Subdivision Project EIR
Cross Sections through Site

The cross section 1-1 in Figure IV.A-8 shows project massing at the northeastern edge of the site, as seen along the intersection of Paseo Grand Drive and Del Rio Court (privately owned streets with Vineyard Valley Mobile Home Park). Due to the higher grade of the project site, where the overall ground level would be raised by a maximum of 4 feet by a retaining wall; pedestrians at this intersection looking north would directly see the single-family residences of the proposed project. The present view of the vacant lot, with the vineyards and hills beyond it, would be blocked. However, at no point would hillside views be entirely blocked by the project. Additionally, the vegetation along these property lines is relatively dense and obscures views at many points.

The cross section 2-2 in Figure IV.A-8 shows project massing along the southern perimeter of the site, as seen along the proposed Starr Avenue extension. Due to the higher grade of the project site, where the overall ground level would be raised by a maximum of 4 feet by a retaining wall; pedestrians along this public street looking north would directly see the single-family residences of the proposed project. However, at no point would the views of the Howell Mountains be entirely blocked by the project.

Policy CD3.1 in the Community Design Element of the Draft General Plan Update states that the new development should "*Limit building envelope sizes and require adequate side and rear setbacks to preserve the character of existing residential areas and to avoid overbuilt lots. Require future development to conform to the pattern and density of older, neighboring areas of town in order to complement existing town character and ensure that densities are high enough to protect against unnecessary incursion into vineyard agricultural areas.*"

While replacing a vacant site with residential development could be considered an action that would degrade the existing visual character of the project site, the City's General Plan recognizes that this site would be developed, as it has an "MDR" designation on the General Plan map that allows for medium density residential development. The proposed project would involve the construction of single- and multi-family residences of one- or two-story height on the project site, consistent with the location's identification as one of the key housing opportunity sites in the 2007-2014 Housing Element. Additionally, urban development of similar types and densities are located east and south of the project site.

The proposed structures will be subject to Design Review by the Planning Commission and subject to the City's design review standards. The Design Review process will ensure that the single-family homes and multi-family buildings are in character that is compatible with the surrounding development.

Based on the above, this impact is less than significant, as the proposed development would not substantially degrade the visual quality of the site and its surroundings.

c. Significant Aesthetic Resources Impacts

The following discussion describes the significant impacts to aesthetic resources that would result from implementation of the proposed project.

Impact AES-1: The proposed project would create a new source of light and glare affecting day and nighttime views. (S)

Development of the proposed project would result in the addition of maximum 87 new units on the project site of size and mass similar to those in the project's vicinity. Most homes emit some light and glare during the day and evening hours, as is typical in a residential area. The proposed development would include indoor lighting and outdoor lighting for safety purposes, which could be visible from a distance at night. Additionally, sun reflecting off the windows of the proposed development could create daytime glare. All lighting shall conform to the Lighting Zone 2 requirements of Title 24 of the California Building Code.

Implementation of the following will ensure that light and glare created by the proposed project would be minimized, comparable to that of the surrounding adjacent neighborhood.

> Mitigation Measure AES-1: Lighting design guidelines for new development shall be developed that mitigate light pollution while ensuring adequate nighttime security. The guidelines shall be approved by the City as part of the Design Review process and prior to the issuance of the first building permit for the project.
>
> AES-1a: Lighting shall be shielded to reduce glare and shall be cast downwards. Outdoor lighting shall occur primarily for the purpose of security and safety. Up cast lighting shall be discouraged to minimize impacts on wildlife and to retain the agricultural ambience of St. Helena.
>
> AES-2b: Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare.
>
> Implementation of the above mitigation measures would reduce this impact to less than significant. (LTS)

B. AGRICULTURE AND FOREST RESOURCES

This section evaluates the potential impacts of the Hunter Subdivision Project on agriculture and forest resources in the vicinity of the project site. Potential impacts to these resources that could result from the proposed project are identified and mitigation measures are recommended, as appropriate.

1. Setting

Agricultural and forestry resources on and surrounding the site are briefly described below. A description of the regulatory setting that applies to agricultural and forestry resources is also provided.

a. Existing Setting

This section describes the existing setting for agricultural and forestry resources on and surrounding the site.

(1) Agricultural Resources

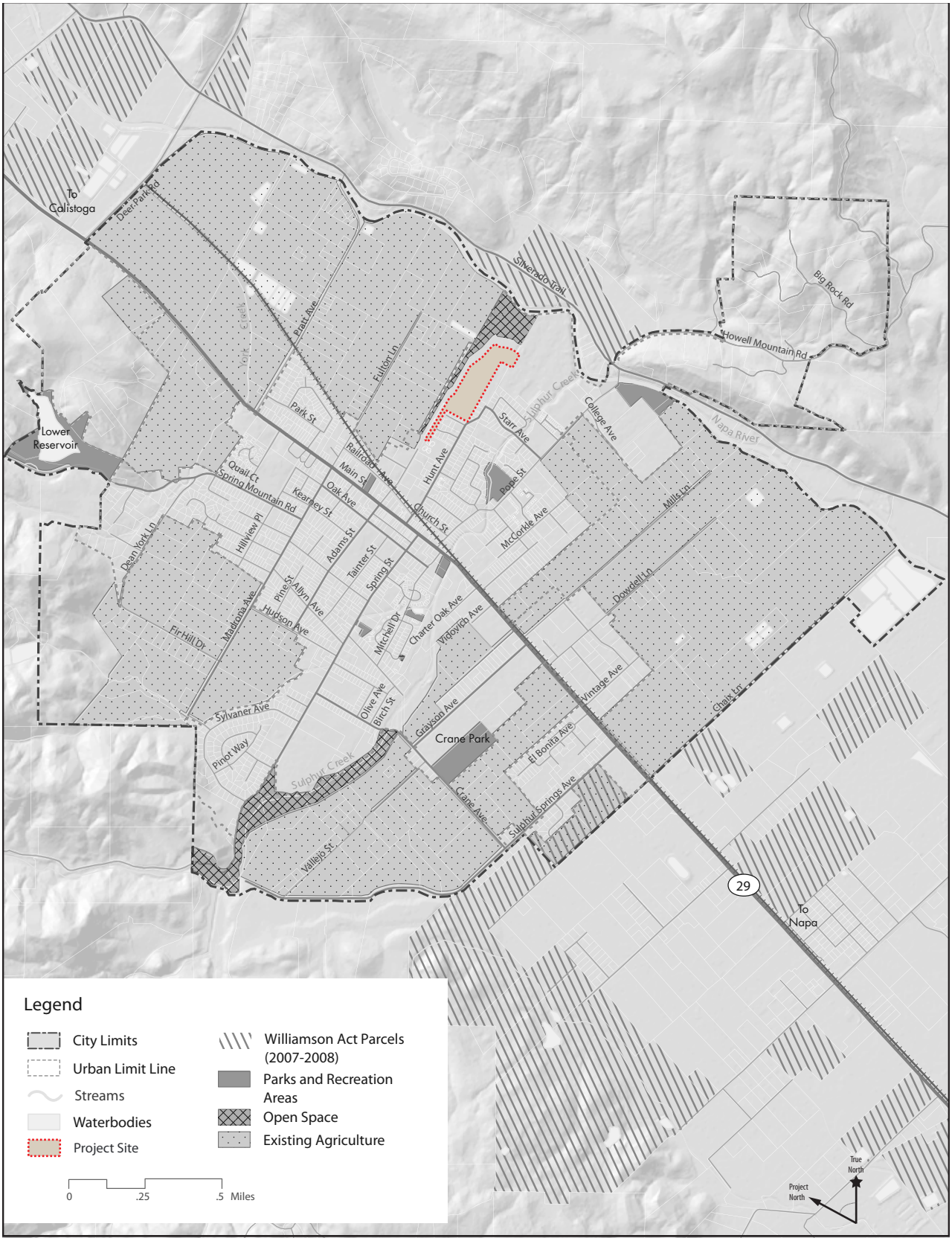
Agricultural resources include the production of all plants, aquatic species, forestry, animals and other related production activities. Agriculture, primarily viticulture, is the predominant land use in the City of St. Helena. In some areas, agricultural lands adjoin or are surrounded by urban uses.

The project site currently has vineyards covering approximately thirty-two percent of the site. There are vineyards north of the site beyond the proposed Adams Street extension and the levee. East of the site is the St. Helena Flood Control Project and the Napa River. South of the site there are residential uses and west of the site there are commercial uses. Highway 29, Main Street in St. Helena, is three blocks west of the site.

The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands. The Williamson Act protects agricultural land from growth pressures by reducing the tax liability for land while it remains in agricultural use. Property owners enter into 10-year contracts with the local taxing jurisdiction that automatically renew each year. The project site is not under any active Williamson Act Contract.

Figure IV.B-1 shows the locations of Williamson Act contracts within the city limits and project site vicinity.

The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) tracks the location, quality and quantity of agricultural lands and conversion of these lands by each county in the State. Agricultural resources are rated using a classification system that combines soil ratings and current land use to create the Important Farmland Maps.



Source: St. Helena General Plan Update DEIR, 2010.

Figure IV.B-1
Hunter Subdivision Project EIR
Williamson Act Contract Sites in St. Helena

The project site and land to the north and east of the site are rated as Prime Farmland. To the northwest of the site, but not abutting the site, is an area of Farmland of Statewide Importance. These farmland types are described by the FMMP, as follows.[1]

- **Prime Farmland:** Prime Farmland is land that has the best combination of physical and chemical characteristics for the production of crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the four years prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
- **Farmland of Statewide Importance:** Farmland of Statewide Importance is land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. This land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Descriptions of all of the classification categories are included in the Draft General Plan Update EIR, Section 4b, Agricultural and Forestry Resources.

(2) Forestry Resources

Forestry resources are forestland and timberland. Forest land is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions. There are no areas of timberland production in St. Helena. Most forest lands within the St. Helena city limits are located in the western and eastern hillside areas of the city. Valley oak woodland and eucalyptus are located along creeks that extend through the city. The project site does not have any forested areas or locally designated forest lands on or adjacent to the site.

b. Regulatory Setting

The primary regulatory or planning policies that are applicable to agriculture resources within and around the project site are the California Department of Conservation Farmland Mapping and Monitoring Program, the Open Space and Conservation Element of the General Plan, the St. Helena Municipal Code, and Williamson Act Contracts.

Figure IV.B-2 shows the FMMP farmland map, which designates the project site as Prime Farmland with an overlay designation for urban use by the St. Helena General Plan.[2] The project site is part of the total 81.17 acres on the FMMP map

[1] Department of Conservation Farmland Mapping and Monitoring Program.
[2] "Urban Uses" are defined as the residential, commercial, mixed-use, office, industrial, parks/recreation, and public/quasi-public land use designations of the General Plan Update.

that have been designated for Medium Density Residential uses since the 1993 General Plan.

(1) Existing 1993 General Plan

As stated above, while the FMMP designates the site as Prime Farmland, the existing Land Use and Growth Management Element designates the site as Medium Density Residential (MR).[3] The MR designation allows for single-family detached and attached homes and secondary residential units at a density of 5.1-16.0 dwelling units per acre.

The following policies in the 1993 General Plan are relevant to the protection of agriculture resources:

LAND USE
Agriculture
POLICY 2.6.58 Promote the continuation of agricultural activities within and adjacent to the City.
POLICY 2.6.59 Protect prime agricultural land and prime vineyard land from prime vineyard land and/or unnecessary urban encroachment

(2) Draft General Plan Update

The Draft Land Use and Growth Management Element from the Draft General Plan Update presents a framework for governing future decisions about allowable, context-appropriate land use and desirable development patterns to maintain and enhance the character of St. Helena.

The following goal is relevant to the protection of agricultural resources:

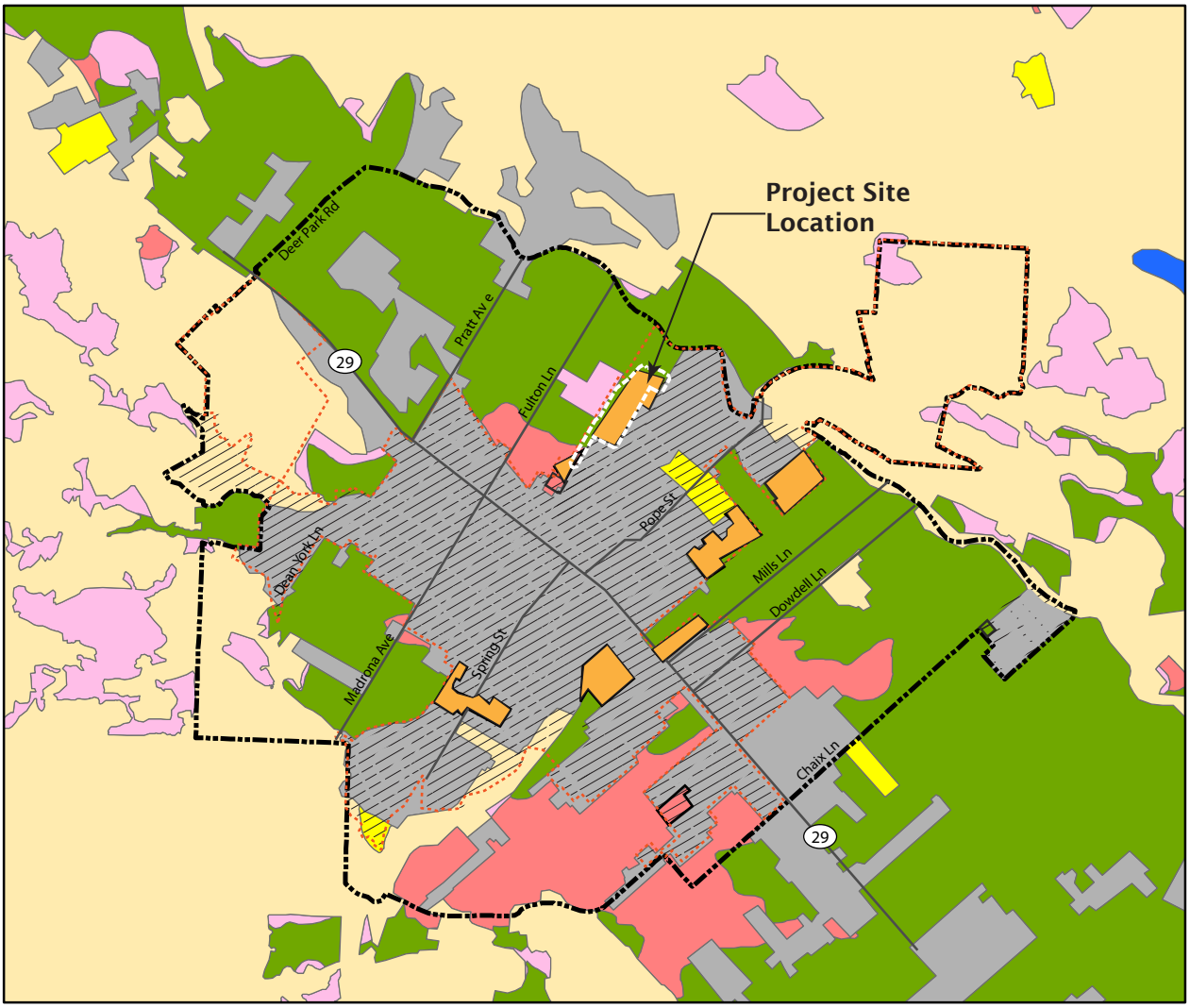
LAND USE
Agricultural Uses
GOAL LU5.1 Support and protect agricultural uses within and adjacent to the City.

(3) St. Helena Municipal Code (Right-to-Farm Provisions)

The St. Helena Municipal Code (Chapters 17.32 through 17.60 and 17.68) contains the following "right-to-farm" provision in the regulations for each nonagricultural zoning districts:

> *Property owners within this district shall recognize that there exists a right to farm properties within the district and in the vicinity of the district. There is a good faith expectation that no complaints will occur regarding legal normal*

[3] St. Helena General Plan Update 2030, Draft, *Land Use and Growth Management Element,* 2010.



St Helena City Limits

Urban Limit Line

California Department of Conservation Mapping Category (approximate acreage within St Helena city limits)

- Urban and Built-Up Land (1171 acres)
- Grazing Land
- Farmland of Local Importance (23 acres)
- Prime Farmland (966 acres)
- Farmland of Statewide Importance (284 acres)
- Unique Farmland (53 acres)
- Other Land (656 acres)
- Area designated for urban uses by proposed General Plan. (Note: See Figure 2.1 in proposed General Plan. "Urban uses" are defined as the residential, commercial, mixed use, office, industrial, parks/recreation, and public/quasi-public land use categories.)
- Area of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance designated for urban uses by proposed General Plan (82 acres)

0 .5
Miles

True North
Project North

Source: St. Helena General Plan Update DEIR, 2010.

Figure IV.B-2
Hunter Subdivision Project EIR
Farmland in St. Helena

agricultural activities on properties in the district or in the vicinity of the district. Such activities may include day or night disbursement of chemicals, and creation of dust, noise, or fumes.

In addition, Municipal Code Section 17.04.100 ("Cultivated agricultural use within established zoning districts") specifies the following:

It is the policy of the city as expressed in the general plan to recognize and provide for cultivated agriculture within the city limits. Cultivated agricultural uses are permitted within the A-20 zoning district and regulated by use permit in the woodlands and watershed zoning district. It is the intent of the city to allow cultivated agricultural uses including, but not limited to, farming, horticulture, floriculture and viticulture, but excluding animal husbandry and livestock farming, in all zoning districts within the urban limit line prior to establishment of urban land uses. Allowing cultivated agriculture within the urban limit line shall not compromise the long-term objective of providing for designated urban uses. Water used for cultivated agriculture shall be in conformance with Section 13.04.100 of this code.

2. Impacts and Mitigation Measures

This section discusses potential impacts on agricultural resources that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.B-1.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on agricultural and forest resources and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to agricultural resources and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact on agricultural resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

TABLE IV.B-1 AGRICULTURE AND FOREST RESOURCES IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	SU (see Impact AGRI-1 on page 95)
▪ Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Focused out in Initial Study (see page 93)
▪ Conflict with existing zoning for, or cause rezoning of forest land (as defined by PRC Sec. 12220(g), timberland (as defined in PRC Sec. 4526), or timberland zoned Timberland Production (as defined in PRC Sec. 51104 (g)?	Focused out in Initial Study (see page 93)
▪ Result in the loss of forest land or conversion of forest land to non-forest use?	Focused out in Initial Study (see page 94)
▪ Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to a non-agricultural use or conversion of forest land to a non- forest use?	LTS (see page 94)

Source: Urban Planning Partners, 2012.

- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The project site is Prime Farmland and is partially used for agriculture. It is not zoned for agriculture or forest land and no part of the site falls under an active Williamson Act contract. The Initial Study determined that the project would have no impact with regard to the following criteria:

- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined

by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

- Result in the loss of forest land or conversion of forest land to non-forest use.

As a result, no further discussion of these criteria is provided in this EIR.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A Scoping Summary of comments received is included in Appendix A of this document.

Comments concerning agricultural resources were related to a potential General Plan re-designation of the site to Agriculture use. As of the publication of this EIR, the city has decided not to pursue a re-designation. As a result, re-designation is not discussed further.

b. Less-than-Significant Agricultural and Forest Resource Impacts

The following discussion describes the less-than-significant impacts to agricultural resources that would result from implementation of the proposed project.

Land under other Farmland classifications on the FMMP map would not be converted to non-Agricultural uses by the proposed project. The land north of the project site beyond the levee is currently in active agricultural production, and is designated as Prime Farmland (without an urban use overlay); it is located beyond the City's Urban Limit Line and designated as Agriculture in both the 1993 and Draft General Plan Update. The City's right-to-farm provision will ensure that development of the project site does not result in conversion of the property to the north to non-agricultural uses. In addition, since it is beyond the City's Urban Limit Line, it could not be converted to any other use.

The Draft General Plan EIR includes a mitigation measure for urban development abutting an agricultural use. The mitigation measure calls for urban development to incorporate a buffer area between the two uses. The proposed project already has a buffer to the north where the levee for the St. Helena Flood Control Project is located. As a result, the project would not result in conversion of other Farmland to a non-farm use, other than noted below.

c. Significant Agricultural and Forest Resources Impacts

There would be no significant forest resource impacts that would result from implementation of the proposed project. Significant impacts related to agricultural resources are described below.

Impact AGRI-1: Development of the project site would convert Prime Farmland to non-agricultural use. (S)

The Farmland Mapping and Monitoring Program of the California Resources Agency identifies the project site as Prime Farmland, but with an overlay for designation for urban use.[4] The project site is designated for Medium Density Residential uses in the 1993 General Plan and the Draft General Plan Update. The Draft General Plan Update EIR does not identify the designation of Prime Agricultural land for urban uses as a significant impact on agricultural resources since it is a continuation of land use policy from the 1993 General Plan. Previous to the 1993 designation, the property was designated Urban Reserve.

Although the majority of the site is currently ruderal open space, there is some agricultural production on the site, with approximately 32 percent of the site covered with vineyards. The vineyards located within the panhandle area of the project site would remain after the development. The remaining site would be developed with a mix of single- and multi-family residential uses.

Development of the project site under the Medium Density Residential designation would conform to the existing and proposed General Plan and the Medium Density Residential zoning. It would also continue the already established Medium Density land use pattern of the neighborhood to the south of the site. However, the development of residential uses on the site would permanently convert land mapped as Prime Farmland to non-agricultural uses. Although the site has been planned for residential development, there would be a loss of Prime Farmland that was not fully addressed in prior environmental documents, and approval and construction of the proposed project on the site would result in a significant impact.

Mitigation Measure AGRI-1: Prior to issuance of a grading or building permit, whichever occurs first, the project sponsor shall provide written evidence of completion of one or more of the following measures to minimize the loss of agricultural land at a ratio of 1:1 before conversion:

1. Funding and/or purchasing agricultural conservation easements (to be managed and maintained by an appropriate entity) within Napa County.

[4] "Urban Uses" are defined as the residential, commercial, mixed-use, office, industrial, parks/recreation, and public/quasi-public land use designations of the General Plan Update.

2. Purchasing credits from an established agricultural farmland mitigation bank within Napa County.
3. Contributing agricultural land or equivalent funding to an organization that provides for the preservation of farmland in Napa County.
4. Participating in any agricultural land mitigation program adopted by Napa County that provides equal or more effective mitigation than the measures listed above.

Mitigation land shall meet the definition of Prime Farmland, Farmland of Statewide Importance, and/or Unique Farmland and be of similar agricultural quality or higher, as established by the State Department of Conservation. Completion of the selected measure or, with the Planning Director's approval, a combination of selected mitigation measures can occur on qualifying land within Napa County.

Implementation of this mitigation measure will help minimize the project's significant environmental effects associated with the conversion of Prime Farmland, but not to a less-than-significant level. When farmland is converted to urban use, a requirement that conservation easements be obtained on other land does not replace the converted land, but such an easement can help diminish the development pressures created by the conversion of farmland. As a result, the City finds this impact significant and unavoidable. (SU)

C. AIR QUALITY

This section evaluates the potential air quality impacts of the proposed project. The impacts associated with the proposed project were evaluated in terms of operational and construction impacts to air quality. The air quality analysis considered project-related emissions on regional air quality, existing sources of air pollution near the project that could affect the new project residents, and the temporary short-term construction air quality impacts on nearby existing residents. This analysis was conducted following guidance provided by Bay Area Air Quality Management District (BAAQMD).[1]

1. Setting

The following discussion provides an overview of the local climate, air pollutants of concern, and existing air quality conditions in the St. Helena area. An overview of the regulatory environment is also provided.

a. Climate Setting

The climate in the City of St. Helena is Mediterranean in character, with warm, dry months from June through September and cooler temperatures and a rainy season from November through March. Summer temperatures tend to be in the 70s to 80s and winter temperatures tend to be in the 40s to 50s. July, the warmest month of the year, can have average maximum temperatures of about 89 degrees Fahrenheit.[2] Annual average precipitation in St. Helena is 35 inches. The wettest month of the year is generally January, with an average rainfall of 7.5 inches.[3]

During the summer and fall, prevailing winds can transport ozone precursors northward from the San Pablo Bay and Carquinez Strait area into the Napa Valley, which effectively traps and concentrates pollutants when stable conditions are present. In addition, pollutants may be recirculated by the local upslope and downslope flows created by the surrounding mountains, contributing to buildup of air pollution within the valley. In the late fall and winter, particulate matter from motor vehicles, agriculture, and wood burning in fireplaces and stoves can build up in the valley because of frequent light wind and stable atmospheric conditions.[4]

---

[1] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

[2] Idcide, 2009. Website http://www.idcide.com/weather/ca/st-helena.htm, accessed November 23.

[3] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

[4] City of St. Helena, 2010. *General Plan Update 2030.*

b. Air Pollutants and Air Pollutants Effects

Air quality studies generally focus on five pollutants that are most commonly measured and regulated (and referred to as "Criteria Pollutants"): carbon monoxide (CO), ground level ozone formed through reactions of nitrogen oxides (NO) and reactive organic gases (ROG), nitrogen dioxide (NO2), sulfur oxide, and suspended particulate matter; i.e., respirable particulate matter (PM10) and fine particulate matter (PM2.5). Toxic air contaminants (TACs) identified by the California Environmental Protection Agency (Cal/EPA), such as diesel particulate matter, are also of concern where receptors are located in proximity to sources.

(1) Carbon Monoxide

CO is a colorless, odorless gas produced by the incomplete combustion of fuels, primarily from transportation sources but also from wood-burning stoves, incinerators, and other industrial sources. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near highly congested transportation corridors and intersections.

When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks.

(2) Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, it can be harmful to the human respiratory system and to sensitive species of plants when it reaches elevated concentrations in the lower atmosphere. Ozone concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures.

Ozone is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and oxides of nitrogen (NOx) in the presence of sunlight. Sources of ROG and NOx are vehicle tailpipe emissions; the evaporation of solvents, paints, and fuels; and biogenic sources.[5] Automobiles are the single largest source of ozone precursors in the San Francisco Bay Area Air Basin (SFBAAB).

Short-term ozone exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to

[5] Biogenic emissions result from natural biological processes such as the decomposition or combustion of vegetative matter. Landfills and woodstoves are examples of sources of biogenic emissions.

seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Sensitivity to ozone varies among individuals, but about 20 percent of the population is sensitive to ozone, with exercising children being particularly vulnerable.

(3) Nitrogen Dioxide

NO2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made NO2 sources are combustion devices, such as boilers or turbines, and internal combustion engines. Combustion devices emit primarily NO, which oxides in the atmosphere to form NO2. NO and NO2 are collectively referred to as NOx.

NO2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. NO2 increases hyper-responsiveness of asthmatic individuals after short-term exposures and longer-term exposure to NO2 increases respiratory illness among children. Recent studies have found that exposure increases airway inflammation, and results in increased hospital or emergency room visits for asthma and cardiovascular disease, and possibly increases the risk of cardiopulmonary mortality. Children exposed to NO2 may experience reduced maximum lung size by limiting lung growth and subsequently increasing the risk in adulthood for chronic respiratory disease.

(4) Sulfur Oxides

Sulfur dioxide 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. High concentrations of sulfur dioxide affect breathing and may aggravate existing respiratory and cardiovascular disease. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly.

(5) Particulate Matter

PM10 and PM2.5 consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen, forest fires, and windblown dust, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, combustion products, abrasion of tires and brakes, and construction activities. Particulate matter can also be formed in the atmosphere by condensation of sulfur dioxide and ROG.

Particulate matter exposure can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease,

asthmatics, the elderly and children are most sensitive to the effects of particulate matter.

(6) Toxic Air Contaminants

TACs include a diverse group of air pollutants that can adversely affect human health. They are not fundamentally different from the criteria pollutants, but they have not had ambient air quality standards established for them for a variety of reasons (e.g., insufficient dose-response data, association with particular workplace exposures rather than general environmental exposure, etc.). The health effects of TACs can result from either short-term "acute" or long-term "chronic" exposure. Chronic exposure to some TACs are known or suspected to cause increased incidences of cancer. Consequently, the BAAQMD has established both a cancer and a non-cancer health risk threshold for TAC emissions.

Federal, State, and local regulations and guidelines govern the level of analysis necessary for stationary sources that appear to have the potential for high TAC emissions. California's Air Toxics Hot Spots Program and the BAAQMD Risk Management Policy require public notification, reporting, and risk assessments for facilities that have the potential to emit TACs that may cause substantial health risks. Many stationary sources of TACs such as gasoline stations and dry cleaning businesses emit in levels that are below the thresholds for public notification and reporting and would not be expected to cause substantial health risks.

Smoke from residential wood combustion can be a source of TACs. Wood smoke is typically emitted during wintertime when dispersion conditions are poor. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind. The pollution can persist for many hours, especially in sheltered valleys. Wood smoke also contains a significant amount of PM10 and PM2.5. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

California Air Resources Board (CARB) has determined that the ten compounds which pose the greatest known health risk in California, based primarily on ambient air quality data, are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).[6] Because CARB estimates that, on a statewide level, DPM has a higher health risk than the other nine compounds combined, DPM is discussed further below.

[6] California Air Resources Board (CARB), 2009. *The California Almanac of Emissions and Air Quality.*

(7) Diesel Particulate Matter

DPM is generated when an engine burns diesel fuel and consists of a mixture of gases and fine particles (also known as soot) that can penetrate deeply into the lungs, where they can contribute to a range of health problems. In 1998, CARB identified particulate matter from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.[7] While diesel exhaust is a complex mixture that includes hundreds of individual constituents, under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole.

Particulate matter from diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average).[8] CARB estimated the background DPM health risk in the SFBAAB in 2000 to be approximately 500 cancer cases per million people, which reflects a drop of approximately 36 percent from estimates for 1990.[9]

The State has adopted various regulations such as Title 13 California Code of Regulations (CCR) Section 1956.1-1956.4, 1956.8 and Title 13 CCR Section 2420 et seq., to reduce diesel emissions in the overall fleet of diesel-fueled vehicles. These regulations include new standards for diesel fuel, emissions standards, and inspection and maintenance requirements. In particular, the reformulated fuel requirements that have already been adopted by U.S. EPA and CARB are expected to reduce, but not eliminate, mobile source TAC emissions. The major concern with air toxics from diesel exhaust is along heavily traveled transportation corridors and around permanent facilities, such as truck depots and distribution centers, with a high concentration of diesel-fueled vehicles. For this reason, the State is taking an active role in devising new standards for these vehicles, for the fuel itself, and for alternative fuels.

CARB has addressed this issue by preparing and approving the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Risk Reduction Plan) (approved on September 28, 2000).[10] This plan represents the State's comprehensive blueprint to substantially reduce diesel particulate emissions throughout the State. The plan contains the following components:

- New regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel particulate matter emissions by about 90 percent overall from current levels;

[7] California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking. Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant.

[8] California Air Resources Board (CARB), 2009. *The California Almanac of Emissions and Air Quality.*

[9] California Air Resources Board (CARB), 2009. *The California Almanac of Emissions and Air Quality.*

[10] California Air Resources Board (CARB), 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.*

- New retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles were determined to be technically feasible and cost effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 parts per million to provide the quality of diesel fuel needed by the advanced diesel particulate matter emission controls.

Most of the plan elements have been implemented through the adoption of new regulations. The Risk Reduction Plan shows that on-road mobile sources comprise a good portion of the diesel PM10 emission inventory within the State. Therefore, the risks associated with on-road diesel vehicles have been addressed by the State and will be substantially reduced by statewide programs over the next decade.

On July 26, 2007, CARB adopted In-Use Off-Road Diesel Vehicle and Large Spark Ignition Fleet Regulations to reduce diesel particulate matter and NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. These regulations require off-road construction equipment labeling, restricts the amount of time off-road equipment can idle, and requires off-road equipment registration with CARB. Originally, the regulations also required off-road equipment operators to replace or retrofit older off-road equipment fleets to meet specific particulate matter and NOx emission standard based on fleet averages. Because of reductions in off-road equipment emissions due to the economic recession and because CARB currently lacks authorization from the U.S. EPA to enforce certain aspects of the regulation, CARB issued a delay of the regulation's NOx and PM retro-fit requirements pending further notice, on February 11, 2010.[11]

(8) Traffic-Related Air Pollutants

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and also contribute to particulates by generating road dust and through tire wear. Epidemiologic studies have demonstrated that people living in proximity to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. Air pollution monitoring done in conjunction with epidemiological studies has confirmed that roadway-related health effects vary with exposure to particulate matter and nitrogen dioxide. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest

[11] California Air Resources Board (CARB), 2010. Regulatory Advisory, Enforcement of the In-Use Off-Road Diesel Vehicle Regulation [Advisory: 10-414].

within 300 feet.[12] As a result, the CARB recommends that new sensitive land uses not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day.[13]

c. Existing Air Quality Conditions

With the exception of various small permitted sources, there are no substantial sources of air pollution or toxic air contaminants in the City of St. Helena. The primary source of air pollution within the City of St. Helena is traffic, particularly State Route 29 traffic.[14]

Sensitive land uses are facilities that generally accommodate sensitive receptors that may experience adverse effects from unhealthful concentrations of air pollutants. Sensitive individuals refer to those segments of the population most susceptible to poor air quality such as children, the elderly, and those with pre-existing serious health problems affected by air quality. Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities.[15] The nearest sensitive receptors to the project are the residences located to the east and the south of the proposed project site boundaries, and a day care facility south of the project site.

(1) Air Monitoring Data

BAAQMD monitors air quality conditions at more than 30 locations throughout the Bay Area. CARB maintains a network of air monitoring sites around California to monitor air quality.

The nearest air monitoring site is located at 26552 Jefferson Avenue in the City of Napa. This air monitoring site is approximately 20 miles south of the proposed project site. The highest ozone, CO, NO2, PM10, and PM2.5 from the Air Monitoring Site for the most recent three years available (2008, 2009, and 2010) are summarized in Table IV.C-1.

The number of days that ozone, CO, NO2, PM10, and PM2.5 exceeded State or federal air quality standards from the air monitoring site for the most recent three years available (2008, 2009, and 2010) are summarized in Table IV.C-2. One-hour ozone levels measured in the City of Napa exceeded the State ambient air quality standard one day in each of the years 2008, 2009, and 2010. The federal ambient air quality 8-hour ozone standard was exceeded on two days in 2008, one day in 2009, and two days in 2010. The State ambient air quality

[12] California Air Resources Board (CARB), 2005. *Air Quality Land Use Handbook: A Community Perspective.*
[13] California Air Resources Board (CARB), 2005. *Air Quality Land Use Handbook: A Community Perspective.*
[14] City of St. Helena, 2010. *General Plan Update, Draft PEIR.*
[15] California Air Resources Board (CARB), 2005. *Air Quality Land Use Handbook: A Community Perspective.*

TABLE IV.C-1 HIGHEST MEASURED AIR POLLUTANT CONCENTRATIONS

Pollutant	Average Time	Measured Air Pollutant Levels		
		2008	2009	2010
City of Napa				
Ozone	1-Hour	**0.107** ppm	**0.100** ppm	**0.106** ppm
	8-Hour	**0.078** ppm	**0.078** ppm	**0.089** ppm
Carbon Monoxide (CO)	8-Hour	1.84 ppm	1.39 ppm	1.37 ppm
Nitrogen Dioxide (NO2)	1-Hour	0.064 ppm	0.041 ppm	0.056 ppm
	Annual	0.010 ppm	0.010 pm	0.009 ppm
Respirable Particulate Matter (PM10)	24-Hour	50.0 ug/m^3	**55.4** ug/m^3	36.6 ug/m^3
	Annual	**21.6** ug/m^3	18.5 ug/m^3	17.4 ug/m^3
Fine Particulate Matter (PM2.5)	24-Hour	43.8 ug/m^3	39.5 ug/m^3	26.2 ug/m^3
	Annual	**13.7** ug/m^3	NA	8.7 ug/m^3

Notes: ppm = parts per million and ug/m^3 = micrograms per cubic meter.
Values reported in bold exceed ambient air quality standard.
NA = data not available.
Source: BAAQMD Air Quality Summaries for 2008, 2009, and 2010: http://www.arb.ca.gov/adam/topfour/topfour1.php.

TABLE IV.C-2 ANNUAL NUMBER OF DAYS EXCEEDING AMBIENT AIR QUALITY STANDARDS

Pollutant	Standard	Days Exceeding Standard		
		2008	2009	2010
Ozone	CAAQS 1-Hour	1	1	1
	NAAQS 8-Hour	2	1	2
	CAAQS 8-Hour	2	3	2
Respirable Particulate Matter (PM10)	NAAQS 24-Hour	0	0	0
	CAAQS 24-Hour	0	1	0
Fine Particulate Matter (PM2.5)	NAAQS 24-Hour	NA	NA	NA
Others (CO, NO2)	NAAQS/CAAQS	0	0	0

Notes: NA = data not available.
Source: BAAQMD Air Quality Summaries for 2008, 2009, and 2010: http://www.arb.ca.gov/adam/topfour/topfour1.php.

8-hour ozone standard was exceeded on two days in 2008, three days in 2009, and two days in 2010. The 24-hour State ambient air quality PM10 standard was exceeded on one day in 2009. No other exceedances of ambient air quality standards were reported in the City of Napa.

d. Federal and State Regulatory Environment

An overview of the federal and State regulatory environments is provided below. The Federal Clean Air Act (CAA) is the primary federal law regulating air quality in the United States. In addition to being subject to federal requirements, air quality in California is regulated under the California Clean Air Act (CCAA). At the federal level, the U.S. Environmental Protection Agency (U.S. EPA) administers the CAA. The California Clean Air Act is administered by the CARB at the State level and by the appropriate air quality management district at the regional and local levels. Regionally, California is divided into 15 air basins. The BAAQMD regulates air quality within the SFBAAB, which includes all of Alameda, Contra Costa, Marin, Napa, San Mateo, and Santa Clara Counties, the southern half of Sonoma County, and the southwestern portion of Solano County. The City also has some local policies and regulations. Following is a discussion of regulatory programs and policies.

(1) United States Environmental Protection Agency

The U.S. EPA is responsible for enforcing the CAA. The U.S. EPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS), as required under the CAA. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles and non-road[16] engines sold in the United States. For construction equipment, the engines are assigned various "Tier" designations based on the year the engine is manufactured and have associated emission standards that must be met.

(2) California Air Resources Board

In California, CARB, which is part of the Cal/EPA, is responsible for meeting the State requirements of the CAA, administering the California CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA requires all air districts in the State to endeavor to achieve and maintain CAAQS.

The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. Automobiles sold in California must meet the stricter emission standards than the standards established U.S. EPA. CARB also has

[16] Construction equipment, off-road recreational vehicles, lawn and garden equipment, boats and watercraft.

establishes passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. CARB conducts or supports research into the effects of air pollution on the public and works with the various regional air quality management districts to develop strategies for reducing air pollutant emissions.

(3) Bay Area Air Quality Management District

BAAQMD is primarily responsible for assuring that the national and State ambient air quality standards are attained and maintained in the SFBAAB. BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits and inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions. BAAQMD also awards grants to reduce motor vehicle emissions, conducts public education campaigns and many other activities associated with improving air quality within the SFBAAB.

The BAAQMD has prepared CEQA Air Quality Guidelines[17] to address air quality issues. The BAAQMD CEQA Air Quality Guidelines assists 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 SFBAAB. Specifically, the CEQA Air Quality Guidelines explain the procedures that the BAAQMD recommends be followed during environmental review processes required by CEQA. The CEQA Air Quality 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.

On January 9, 2012, the Alameda Superior Court heard and issued a ruling in a lawsuit filed by the California Building Industry Association (CBIA) challenging the BAAQMD's CEQA thresholds of significance.[18] The CBIA claimed that the BAAQMD violated CEQA by failing to treat the thresholds as a project under CEQA and to conduct the requisite environmental review for the project. The court ruled that the adoption of the thresholds was a project under CEQA. The ruling requires that BAAQMD rescind the thresholds and study the environmental impacts. The BAAQMD may appeal the ruling. The City of St. Helena Planning Department, as the lead agency, has determined that BAAQMD's adopted Air Quality thresholds are appropriate for determining air quality impact significance for the proposed project.

[17] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

[18] California Building Industry Association v. Bay Area Air Quality Management District, Alameda County Superior Court Case No. RG10548693.

(4) National and State Ambient Air Quality Standards

As required by the CCA, NAAQS have been established for seven major air pollutants: CO, nitrogen dioxide, ozone, respirable particulate matter (PM10), fine particulate matter (PM2.5), sulfur oxides, and lead. Pursuant to the CCAA, the State of California has also established ambient air quality standards. These standards are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Both State and federal standards are summarized in Table IV.C-3.

(5) Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are evaluated for each air pollutant. The SFBAAB as a whole does not meet State or federal ambient air quality standards for ground level ozone and State standards for PM10 and PM2.5 (Table IV.C-3).

Under the CAA, the U.S. EPA has classified the SFBAAB as marginally "nonattainment" for the 8-hour ozone standard. U.S. EPA required the SFBAAB to attain the standard by 2007. Based on monitoring data through 2007, the U.S. EPA has determined that the region has met the standard, but formal redesignation will not occur until a formal redesignation request and maintenance plan are submitted and approved by BAAQMD and CARB. The U.S. EPA grades the region unclassified for all other air pollutants, which include PM10 and PM2.5.

At the State level, the region is considered "serious nonattainment" for ground level ozone and "nonattainment" for PM10 and PM2.5. The SFBAAB is considered "attainment" or "unclassified" for all other pollutants.

(6) Bay Area Clean Air Plan

Air quality plans addressing the CCAA requirements are developed about every three years. The BAAQMD is directly responsible for reducing emissions from stationary sources and for assuring that State controls on mobile sources are effectively implemented. It has responded to these requirements by preparing a series of Ozone Attainment Plans and Clean Air Plans that comply with the Federal CAA and the CCAA to accommodate growth, reduce the pollutant levels in the SFBAAB, meet NAAQS and CAAQS, 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.

TABLE IV.C-3 AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8-Hour	0.070 ppm (137μg/m³)	N	0.075 ppm	N
	1-Hour	0.09 ppm (180 μg/m³)	N	Revoked by U.S. EPA 2005	
Carbon Monoxide	8-Hour	9.0 ppm (10 mg/m³)	A	9 ppm (10 mg/m³)	A
	1-Hour	20 ppm (23 mg/m³)	A	35 ppm (40 mg/m³)	A
Nitrogen Dioxide	1-Hour	0.18 ppm (339 μg/m³)	A	0.100 ppm	U
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)		0.053 ppm (100 μg/m³)	A
Sulfur Dioxide	24-Hour	0.04 ppm (105 μg/m³)	A	0.14 ppm (365 μg/m³)	A
	1-Hour	0.25 ppm (655 μg/m³)	A	0.075 ppm (196 μg/m³)	A
	Annual Arithmetic Mean			0.030 ppm (80 μg/m³)	A
Particulate Matter (PM10)	Annual Arithmetic Mean	20 μg/m³	N		
	24-Hour	50 μg/m³	N	150 μg/m³	U
Particulate Matter – Fine (PM2.5)	Annual Arithmetic Mean	12 μg/m³	N	15 μg/m³	A
	24-Hour			35 μg/m³	N
Sulfates	24-Hour	25 μg/m³	A		
Lead	30-Day Average	1.5 μg/m³			A
	Calendar Quarter			1.5 μg/m³	A
	Rolling 3-Month Average			0.15 μg/m³	U
Hydrogen Sulfide	1-Hour	0.03 ppm (42 μg/m³)	U		
Vinyl Chloride	24-Hour	0.010 ppm (26 μg/m³)	No information available		
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)		U		

Notes: A=Attainment; N=Nonattainment; U=Unclassified; mg/m³=milligrams per cubic meter; ppm=parts per million; μg/m³=micrograms per cubic meter.
Source: Bay Area Air Quality Management District website: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.

The Bay Area 2010 Clean Air Plan[19] is the current ozone air quality plan. The 2010 CAP serves to update the Bay Area ozone plan in compliance with the requirements of the Chapter 10 of the California Health & Safety Code. The goals of the 2010 CAP are to:

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Consider the impacts of ozone control measures on PM10 and PM2.5, toxic air contaminants, and greenhouse gases in a single, integrated plan;
- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2009–2012 timeframe.

In 2003, the Legislature enacted Senate Bill 656 (SB 656) to reduce public exposure to PM10 and PM2.5. SB 656 required the 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 PM10 and PM2.5. The clean air planning efforts for ozone will also reduce PM10 and PM2.5, since a substantial amount of this air pollutant comes from combustion emissions such as vehicle exhaust. In addition, BAAQMD adopts and enforces rules to reduce particulate matter emissions and develops public outreach programs to educate the public to reduce PM10 and PM2.5 emissions (e.g., Spare the Air Program). SB 656 requires further action by CARB and air districts to reduce public exposure to PM10 and PM2.5. Efforts identified by BAAQMD in response to Senate Bill (SB) 656 are primarily targeting reductions in wood smoke emissions and adoption of new rules to further reduce oxides of nitrogen and particulate matter from internal combustion engines and reduce particulate matter from commercial charbroiling activities.

BAAQMD'S Regulation 6, Rule 3 addresses residential wood burning. The rule restricts operation of any indoor or outdoor fireplace, fire pit, wood or pellet stove, masonry heater or fireplace insert on specific days during the winter when air quality conditions are forecasted to exceed the 24-hour NAAQS for PM2.5. The proposed rule also limits excess visible emissions from wood burning devices and require clean burning technology for wood burning devices sold (or resold) or installed in the SFBAAB. The SFBAAB experiences peak ambient particulate matter concentrations on winter days with wood burning being the largest single source of PM2.5 emissions during those days.[20]

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[19] Bay Area Air Quality Management District (BAAQMD), 2010. *Bay Area 2010 Clean Air Plan*.

[20] Bay Area Air Quality Management District Planning and Research website: http://www.baaqmd.gov/Divisions/Planning-and-Research/Particulate-Matter.aspx.

e. Local Regulations and Policies

Local regulations policies and regulations relevant to Air Quality are described below.

(1) City of St. Helena Municipal Code.

Section 15.53 of the St Helena Municipal Code adopts the California Green Building Standards Code[21], which includes the requirement that any new or used wood-burning device intended for use in the City of St. Helena must be one of the following:

- U.S. EPA Phase II certified wood-burning device;
- A pellet-fueled device; or
- A low mass fireplace, masonry heater or other wood-burning device of a make and model that meets U.S. EPA emission targets.

Any gas-fueled heating device or electric-powered heating device is allowed under this standard.

(2) Existing 1993 General Plan.

The City of St. Helena's existing 1993 General Plan includes air quality policies and programs that seek to maintain or improve St Helena's air quality. The following relevant policies of the General Plan address air quality as it affects the community:

PUBLIC HEALTH AND SAFETY
Air
POLICY 8.2.3 Urge and support effective regulation of those sources of air pollution, both inside and outside of St Helena, which affect air quality, by implementing as many of the recommendations of the Napa County Congestion Management Plan (CMP), as feasible. The Napa County CMP recommends a number of land use-based measures to manage traffic congestion, and thereby reduce auto emissions. The recommendations are organized into two categories: ▪ Destination-based Strategies: 1) concentrate major work locations in nodes or employment centers; 2) encourage mixed-use development that allows people to combine or avoid vehicle trips; and 3) require site design features that encourage transit use. ▪ Origin-based Strategies: 1) match housing opportunities to income levels; 2) provide housing opportunities near employment centers; and 3) require design features that encourage transit use.
POLICY 8.2.4 Consider cumulative air quality impacts from proposed developments and promote balanced land use development.
PUBLIC HEALTH AND SAFETY
POLICY 8.2.5 Support a population and employment growth policy, which will not exceed Association of Bay Area Governments population and employment projections. This includes balancing the ratio of employment to population to protect, preserve, and enhance the air quality within the area.

[21] The 2010 Edition of the California Green Building Standards Code (California Code of Regulations, Title 24, Part 11).

(3) Draft General Plan Update.

The City is currently in the process of updating the General Plan. The City's Draft General Plan Update includes air quality policies and programs that seek to maintain or improve St Helena's air quality. The following proposed policies and implementing actions of the Draft General Plan Update address air quality as it affects the community.

PUBLIC HEALTH, SAFETY AND NOISE
Air Quality
POLICY PS1.4 Promote balanced land use development that minimizes cumulative air quality impacts from proposed developments.
IMPLEMENTING ACTION PS1.A Minimize local adverse air quality impacts related to construction by requiring dust abatement procedures for local projects.
IMPLEMENTING ACTION PS1.D Review project proposals for their potential to generate hazardous air pollutants.

2. Impacts and Mitigation Measures

This section discusses potential impacts on air quality that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.C-4.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on air quality and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to air quality and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact on visual resources if it would:

- Conflict with or obstruct implementation of the applicable air quality plan(s);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

TABLE IV.C-4 AIR QUALITY IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Conflict with or obstruct implementation or the applicable air quality plan?	Focused out in Initial Study (see page 113)
▪ Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	LTS for project operation (see page on page 114) LTS with Mitigation for project construction (see Impact AIR-1 on page 117)
▪ 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)?	LTS for project operation (see page 114) LTS with Mitigation for project construction (criteria pollutants) (see Impact AIR-1 on page 117 and Impact AIR-2 on page 119)
▪ Expose sensitive receptors to substantial pollutant concentrations?	LTS for project level (see page 114) SU for construction period (see Impact AIR-2 on page 119)
▪ Create objectionable odors affecting a substantial number of people?	Focused out in Initial Study (see page 113)

Source: Urban Planning Partners, 2012.

- 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;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;

The BAAQMD recently adopted significance thresholds for evaluating air quality impacts from projects and plans and developed guidelines for assessing these impacts. Except for impacts related to TACs and odors, air quality impacts are, by their nature, cumulative impacts because one project by itself cannot generate air pollution that would violate regional air quality standards. The first three thresholds pertain to a project's contribution to cumulative impacts but are labeled "Project-Level Thresholds" here to be consistent with the terminology used by BAAQMD.[22]

Project-Level Thresholds.

- During project construction result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5 (exhaust only) or 82 pounds per day of PM10 (exhaust only);

[22] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

- During project operation result in average daily emissions of 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10; or result in maximum annual emissions of 10 tons per year of ROG, NOx, or PM2.5 or 15 tons per year of PM10;
- Contribute to CO concentrations exceeding the CAAQS of nine parts per million (ppm) averaged over eight hours and 20 ppm for one hour;
- During either project construction or project operation expose persons by siting a new source or a new sensitive receptor to substantial levels of TACs resulting in (a) a cancer risk level greater than 10 in one million, (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM2.5 concentration above 0.3 micrograms per cubic meter or;
- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

Project-Level Cumulative Thresholds.

- During either project operation or project construction expose persons, by siting a new source or a new sensitive receptor, to substantial levels of TACs resulting in (a) a cancer risk level greater than 100 in a million, (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM2.5 of greater than 0.8 micrograms per cubic meter.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study determined that the project would have no impact with regard to the following air quality criteria:

- Conflict with or obstruct implementation of the applicable air quality plan(s); or
- Create objectionable odors affecting a substantial number of people;

As a result, no further discussion of these criteria is provided in this EIR.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

Comments related to air quality focused on impacts due to fireplaces, and overall air quality of the area due to the new development. These comments have been addressed in the impacts analysis below.

b. Less-than-Significant Air Quality Impacts

The following impacts of the proposed project have been found to be less than significant.

(1) Increase of Any Criteria Pollutant

Once the construction phase of the project is completed and the project becomes operational, emission of criteria pollutants or their precursors would be generated from area sources such as natural gas-fueled appliances, landscaping equipment, consumer products, painting, and vehicle travel. The operational emissions were quantified using the URBEMIS model and compared to the BAAQMD's significance thresholds.

The emissions of criteria pollutants from the proposed project were estimated using URBEMIS, modeling software that calculates air emission from land uses sources. The land use inputs used in the model consisted of construction of 51 single-family homes, and a 25-unit low-rise apartment complex, to account for the affordable housing.

URBEMIS applied reductions in operational emissions due to local retail and affordable housing. The modeling input and output summaries are provided in Appendix B. The results are summarized in Table IV.C-4 below.

Based on the modeling results presented in Table IV.C-4, the operational emissions would not exceed the BAAQMD's thresholds of significance for criteria pollutants; therefore, this impact is less than significant.

The CEQA Air Quality Guidelines state that if the individual emissions from a project would result in an increase in ROG, NOx, $PM_{2.5}$, or PM_{10} that exceed the project-level significance criteria, then the project would also be considered to contribute considerably to a significant cumulative effect. Since the estimated emissions of ROG, NOx, $PM_{2.5}$, and PM_{10} during the operational (Table IV.C.4) and the construction (Table IV.C-5) phases of the project did not exceed the project-level significance criteria, the project would not result in a cumulative impact to the regional air quality.

(2) Expose Sensitive Receptors to Substantial Pollutant Concentrations

The project would not expose sensitive receptors to substantial pollutant concentrations during the operational phase of the project (emissions associated with construction discussed under "Potentially Significant Impacts" below). As a residential development, the project would not be expected to emit substantial amounts of air pollutants that would significantly affect nearby sensitive receptors. A review of permitted sources of TACs and traffic volumes in the area

TABLE IV.C-4 OPERATIONAL EMISSIONS OF CRITERIA POLLUTANTS

Item	ROG	NOx	PM10	PM2.5
Operational Emissions (pounds /day)	8.1	4.5	5.1	0.99
Operational Emissions (tons/year)	1.4	0.61	0.91	0.17
BAAQMD Thresholds (pounds /day)	54	54	82	54
BAAQMD Thresholds (tons/year)	10	10	15	10
Exceed BAAQMD Threshold	No	No	No	No

Source: BASELINE Environmental, 2012 Appendix B

TABLE IV.C-5 CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS

Item	ROG[a]	NOx	PM10	PM2.5
Construction Emissions – 2012 (pounds/day)	3.80	32.54	1.41 (exhaust)	1.30 (exhaust)
Construction Emissions – 2013 (pounds/day)	4.67	32.75	1.92 (exhaust	1.76 (exhaust)
Construction Emissions – 2014 (pounds/day)	47.39	10.05	0.61 (exhaust)	0.56 (exhaust)
Construction Emissions – 2015 (pounds/day)	9.48	9.27	0.57 (exhaust)	0.52 (exhaust)
BAAQMD Thresholds (pounds /day)	54	54	82 (exhaust)	54 (exhaust)
Exceed BAAQMD Threshold	No	No	No	No

[a] Accounts for use of low volatile organic compound paint as per BAAQMD Regulation 8, Rule 3.
Source: BASELINE Environmental Consulting, 2012.

indicated that there are no major sources within 1,000 feet of the proposed project (Figure IV.C-1); therefore, the proposed project would not expose new residential users of the proposed project to existing sources of TACs.[23]

In accordance with the CEQA Air Quality Guidelines' methodology for evaluating the cumulative impact related to TACs, the area within a 1,000-foot radius of the proposed project site was screened for sources such as high-volume roadways or stationary sources permitted by BAAQMD. No substantial TAC sources were identified within 1,000 feet, indicating that during the operational phase of the proposed project, the new receptors would not be exposed to cumulatively considerable concentrations of TACs.

[23] The BAAQMD CEQA guidance recommends that a 1,000-radius be used to assess the community risk and hazards from exposure to Toxic Air Contaminants.

Source: Google Earth, 2011.

0 250 500 Feet

True North

Project North

Project Site

1,000-foot radius

Figure IV.C-1
Hunter Subdivision Project EIR
BAAQMD Recommended Area for Air Quality Impact Evaluation

CO emissions may result in localized impacts where high traffic volumes are coupled with heavy congestion, such as at intersections with low levels of service. The BAAQMD has developed the following preliminary screening methodology for determining whether the implementation of a project would result in CO emissions that exceed the CO threshold of significance. A project that meets the following criteria would not be expected to cause an exceedance of the CO thresholds of significance.

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

As stated earlier, the project in consistent with Napa County CMP land use-based destination-based and origin-based strategies to manage traffic congestion, and thereby reduce auto emissions. The traffic study performed in support of the proposed project did not estimate increases in hourly traffic volumes over 44,000 vehicles per hour at the intersections studied. The intersections in the area do not have limited vertical and/or horizontal mixing. Based on these criteria, the proposed project would not result in a significant localized CO impact.

c. Significant Air Quality Impacts

The proposed project would result in two significant air quality impacts as discussed below.

<u>Impact AIR-1</u>: Construction of the proposed project could contribute substantially to an existing or projected air quality violation. (S)

Grading and new construction activities would temporarily affect local air quality during project construction, causing temporary increases in particulate dust and other pollutants. Emissions generated from construction activities include fugitive dust (particulate matter) and emissions of criteria air pollutants or their precursors, primarily from operation of construction equipment and worker vehicles. Evaporative emission of the ozone precursor ROG would be generated from asphalt paving and architectural coating applications.

Since the thresholds of significance for criteria pollutants ROG, NOx, and particulate matter are based in units of pounds per day and tons per year, construction scheduling is an important component of the air quality evaluation. Although a construction start date has not been determined, the applicant anticipates that overall grading and installation of roads water, sewer telecommunication, electrical and natural gas lines for the project would be complete within 18 months after the approval of the project's entitlements, and on commencement of work. The site improvements would be completed in one phase starting with infrastructure construction immediately after the approval of the Final Map. Work on the Final Map will begin immediately following the approval of the EIR. The intent is to have the subdivision, landscape and infrastructure improvements completed within this 18-month time period.

Buildout of the project would be subject to the City's Growth Management System, which limits the issuance of non-income restricted residential building permits to nine units per year. Unfulfilled non-income restricted residential building permits are rolled over from year to year. Based on information from St. Helena Planning Department, there are forty-three existing permits. Based on the Growth Management System requirements, current demand on permits, and the number of existing unfulfilled permit, the following residential construction schedule was assumed:

- **Fall of 2012:** Site Grading.
- **2013:** Build infrastructure (installation of roads water, sewer telecommunication, electrical and natural gas lines).
- **2014:** Construction of 31 non-income restricted units.
- **2015:** Construction of 25 affordable housing and 20 non-income restricted units.

Phases evaluated included grading, extension of Adams Street and Starr Avenue, building, paving for the road and parking lots within the project site and application of architectural coatings (paint). Construction phase overlap was assumed for the building of the residences and painting. The default equipment load factors used in the model were reduced 33 percent as per CARB recommendation.[24] The modeling input and output summaries are provided in Appendix B.

(1) Exhaust Emissions

Exhaust emission from construction equipment would include ozone precursors ROG and NOx and particulate matter, PM10 and PM25. The exhaust emissions estimated using URBEMIS indicated that the emissions of ROG, NOx, PM10, and

[24] California Air Resources Board (CARB), 2010. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements.

PM2.5 would be below the BAAQMD's significance criteria, as shown on Table IV.C-5.

(2) Dust Generating Activities

Dust generating construction activities cause emissions of fugitive dust, particularly during earthmoving activities such as grading. The BAAQMD recommends implementation of a basic set of construction mitigation measures during construction activities to reduce emission of dust particulate matter.[25] BAAQMD dust control measures were included in the URBEMIS modeling and were estimated to reduce PM10 and PM2.5 dust emissions during grading 93 percent. The BAAQMD considers that with implementation of the recommended dust control measures, as summarized in Mitigation Measure AIR-1, the fugitive dust impact will be less than significant.[26]

Mitigation Measure AIR-1: During grading and construction, all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, as necessary, to prevent wind-blown dust.

1. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
2. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, or as necessary. The use of dry power sweeping is prohibited.
3. All vehicle speeds on unpaved roads shall be limited to 15 mph.
4. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

With implementation of Mitigation Measure AIR-1 the proposed project's contribution to an existing or projected air quality violation would be less than significant. (LTS)

Impact AIR-2: Heavy-duty diesel equipment used during clearing, grading, and construction would emit DPM and TACs that would temporarily affect local air quality and possibly affect nearby sensitive receptors. (S)

Current BAAQMD's guidance recommends that the PM2.5 and health risk be evaluated first using screening tables they have developed, based on the size of

[25] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines*.
[26] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines*.

the project and distance to the nearest receptor.[27] The Hunter Subdivision Project is approximately 16.9 acres in size, and the nearest receptors are located adjacent to the project site, with an estimated 25 to 50-foot setback from the property line.

The health risk for construction was evaluated using the annual average PM2.5 concentration threshold of significance of 0.3 μg/m^3 as a screening value.[28] Even for a small residential construction project of five units, BAAQMD's screening tables indicate that the minimum setback from sensitive receptors to reduce the annual average PM2.5 concentrations to less than 0.3 μg/m^3 would be 75 feet.[29] For the construction of 25 residential units, the minimum setback from sensitive receptors to reduce the annual average PM2.5 concentrations to less than 0.3 μg/m^3 would be 100 feet.[30] The document accompanying the screening table states:

> *"Project proponents should be aware that it is not unusual for a more detailed dispersion analysis and HRA can [sic], in some cases, show that risks are less than significant. Thus, project proponents and CEQA lead agencies could choose to 1) assume that the risk is equivalent to that determined using the screening procedure and identify mitigation necessary to reduce to below the risk thresholds OR 2) conduct more detailed analysis to examine further whether significant risks are associated with their project and to determine more precisely what mitigation may be necessary."*[31]

Since the project development plans and phasing have not been fully developed, a more refined assessment of the health risks associated with construction activities is not feasible. Dispersion modeling requires that the location of emission sources, the area of work, and the time that sources are emitting pollutants be well defined to determine pollutant concentration at the nearest receptor. Since the nearest residential receptors are located adjacent to the project boundaries, it is unlikely that the PM2.5 or health risks would be below the significance thresholds for all phases of the project. Therefore, this is a significant impact.

Implementation of Mitigation Measure AIR-2a, requiring the BAAQMD's recommended basic construction mitigation measures that apply to construction emission abatement, and Mitigation Measure AIR-2b, requires use of off-road

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[27] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

[28] Bay Area Air Quality Management District (BAAQMD), 2011. *BAAQMD CEQA Air Quality Guidelines.*

[29] Bay Area Air Quality Management District (BAAQMD), 2010. Screening Tables for Air Toxics Evaluation during Construction.

[30] Bay Area Air Quality Management District (BAAQMD), 2010. Screening Tables for Air Toxics Evaluation during Construction.

[31] Bay Area Air Quality Management District (BAAQMD), 2010. Screening Tables for Air Toxics Evaluation during Construction.

equipment that meets the most stringent U.S. EPA emission standards, as available, would reduce the severity of the impact. Most common types of off-road construction equipment, manufactured between 2008 and 2011, are equipped with Tier 3 engines, which emit less particulate matter and NOx than older equipment.

Based on the URBEMIS modeling performed for this project, the reduction in PM10 and PM2.5 emissions from using Tier 3 engines compared to the equipment assumed in URBEMIS ranges from 23 to 25 percent.[32] For some types of construction equipment, it may not be feasible for construction contractors to rent or modify their current, older equipment. However, older equipment can be equipped with Level 3 CARB-verified emission control devices to reduce particulates 85 percent and NOx 15 percent. Implementation of these emission control measures would reduce emission to the extent feasible; however, it is unlikely that the impact would be reduced to less than significant for all receptors, given the close proximity of the residences to the project site. Therefore, this impact would remain significant and unavoidable with mitigation. Since this impact was found to be significant and unavoidable at the project level, it would also be a considered significant and unavoidable cumulative impact.

Mitigation Measure AIR-2: Implementation of the following two-part mitigation measure would minimize this impact:

AIR-2a: To reduce construction vehicle emissions, the project sponsors shall incorporate these into construction specifications:

1. Idling times shall be minimized by either shutting equipment off when not in use or reducing the maximum idling time to 5 minutes, as required by the California airborne toxics control measure, Title 13, Section 2485 of CCR. Clear signage shall be provided for construction workers at all access points.
2. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

AIR-2b: The project sponsors shall ensure that construction contract specifications include a requirement that all off-road construction equipment used on the proposed project be equipped with Tier 3 (Tier 2 if greater than 750 hp) diesel engines or better, or Level 3 CARB-verified emission control devices to meet Tier 3 emission standards, to the extent feasible.

[32] Construction equipment emissions are based on average equipment emission by county.

The contractor will submit to the City a list of off-road construction equipment 50 horsepower of greater to be used on the project. The list will include the following information:

1. Equipment type and manufacturer.
2. Equipment identification number (required by CARB).
3. Year of engine manufacture.
4. Engine Tier rating.
5. Emission control devices, if applicable.

Should it be determined by the construction contractor or its subcontractors that compliance with the emissions control requirements of this mitigation measure is infeasible for a specific piece of construction equipment, the construction contractor shall document, to the satisfaction of the City, that the contractor has complied with this mitigation measure to the extent feasible and indicate why full compliance with the mitigation measure is infeasible.

Implementation of this mitigation measure will minimize this impact, but not reduce it to a less-than-significant level. (SU)

D. BIOLOGICAL RESOURCES

This section summarizes information on the biological resources of the Hunter Subdivision Project site and provides an evaluation of the potentially significant impacts on sensitive resources.

Biological resources were identified through the review and compilation of existing information and a field reconnaissance survey. The review provided information on the condition of natural resources in the area, the extent of sensitive natural communities and critical habitat, presence or absence of jurisdictional wetlands previously identified on the site, and the distribution and habitat requirements of special-status species that have been recorded from or likely to occur in the project vicinity.

WRA, Inc. conducted a field reconnaissance survey of the Hunter Subdivision Project site on November 3, 2011 in order to verify site conditions, assess habitat suitability for special-status species and evaluate the potential presence of any wetlands that may have formed as a result of the placement of fill during the Napa River flood control project (completed in August 2010) that altered the Hunter Subdivision Project site topography.

1. Setting

a. Existing Conditions

This section presents the existing physical and regulatory conditions for biological resources.

Existing conditions from the proposed project site related to biological issues, including wetlands and special-status species, are described below.

(1) Vegetation and Wildlife

The site has been extensively altered by past filling activities associated with agriculture, residential development, and flood control. Habitat types on the site are now limited to non-native grassland, agricultural land (vineyard), and a drainage ditch with limited riparian vegetation. The following describes existing biological conditions at the project site.

Non-Native Grassland. The majority of the project site supports non-native grassland and ruderal species. The grasslands are dominated by non-native annual and perennial species, such as perennial ryegrass (*Festuca perennis*), wild oat (*Avena fatua*), barley (*Hordeum* sp), and brome (*Bromus* sp.) A few weedy species also occur in the grasslands, such as Fluella *(Kicksia elatine),* sweet fennel (*Foeniculum vulgare*), redstem stork's bill (*Erodium cicutarium*), wild radish (*Raphanus sativus*), and bristly ox-tongue (*Picris echioides*). Grassland habitat is not listed as a sensitive natural community in the California Natural Diversity Database (CNDDB).

The grasslands on the site are of limited value to wildlife because of their mowed and disced condition. Species which may use this habitat include black-tailed jackrabbit (*Lepus californicus*), California vole (*Microtus californicus*), mourning dove (*Zenaida macroura*), and foraging raptors.

Agricultural Land. Agricultural land on the site consists of vineyards in the southwestern portion of the site. This habitat is of limited value for wildlife because of the absence of cover, and is not considered a sensitive natural community type. Wildlife species associated with agricultural lands include small birds and mammals, such as California vole, white-crowned sparrow (*Zonotrichia leucophrys*) and killdeer (*Charadrius vociferous*).

Drainage Ditch. The drainage ditch along the southeastern edge of the site transports runoff water into the stormwater detention basin located off-site to the southeast, via a concrete culvert. This ditch connects to a previously delineated upstream drainage ditch verified as being jurisdictional by the Corps of Engineers in 2008 (Corps File No. 400151N). The ditch contains sparse riparian vegetation including valley oak (*Quercus lobata*), California wild rose (*Rosa californica*), Himalayan blackberry (*Rubus armeniacus*), and California buckeye (*Aesculus californica*).

Perimeter Trees and Shrubs. Trees and shrubs along the perimeter of the site, even though they may or may not be within the property boundaries of the site, could serve as roosting habitat for bats and/or nesting habitat for special-status or migratory bird species protected under State Fish and Game Code and the Migratory Bird Treaty Act.

(2) Special-Status Species

The following provides a discussion of special-status species and conclusions regarding occurrence on the site. Special-status species[1] are plants and animals that are legally protected under the State and/or Federal Endangered Species Acts[2] or other regulations, as well as other species that are considered rare

[1] Special-status species include: designated rare, threatened, or endangered and candidate species for listing by the California Department of Fish and Game (CDFG); designated threatened or endangered and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS); species considered rare or endangered under the conditions of Section 15380 of the *California Environmental Quality Act Guidelines*, such as those plant species identified on lists 1A, 1B and 2 in the *Inventory of Rare and Endangered Vascular Plants of California* of the California Native Plant Society; and other species considered sensitive or of special concern because of limited distribution, such as those included on list 3 in the California Native Plant Society *Inventory* or animals identified as "Species of Special Concern" by CDFG.

[2] The Federal Endangered Species Act (FESA) of 1973 declares that all Federal departments and agencies shall use their authority to conserve endangered and

enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Listed species often represent constraints to development, when proposed development would result in "take"[3] of these species.

Special-Status Animal Species. The California Natural Diversity Data Base of the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service maintain records of special-status animal species reported from the vicinity of the project site. These species are listed in Table IV.D-1. Only two of these species were considered moderately likely to occur onsite based on evaluation of habitats present. No special-status species were considered highly likely to occur, and none were observed during the site visit (see Table IV.D-2). The two species moderately likely to occur are:

- **Western Red Bat** (*Lasiurus blossevili*). California Species of Special Concern, Western Bat Working Group High Priority Species. This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Its day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards or urban areas near riparian habitat. It is moderately likely to occur in foliage along the perimeter of the project area. Open areas, ponds, and the Napa River in the vicinity provide suitable foraging habitat.
- **White-tailed Kite** (*Elanus leucurus*). California Fully Protected Species. This species resides year-round in coastal and valley lowlands, often in agricultural areas. It preys mainly on small mammals, but will also hunt birds, insects, reptiles, and amphibians. Nests are located atop oak, willow or other trees. It is moderately likely to occur in the project area because suitable nesting habitat is present in oak, ash and willow trees at the perimeter, and foraging habitat is present in the vineyards and grassland.

These two special-status wildlife species have legal protective status under state law. The remaining species in Table IV.D-1 are not expected to occur on the site because of the absence of suitable habitat. Past filling activities, agricultural disking, construction disturbance, and development surrounding the site precludes the occurrence of most species of concern.

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threatened plant and animal species. The California ESA (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

[3] "Take" as defined by FESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" a threatened or endangered species. "Harm" is further defined by USFWS to include killing or harming of wildlife by significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. CDFG also considers the loss of listed species' habitat as take.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA

Species	Status	Habitat Requirements	Potential for Occurrence
Plants			
Franciscan onion *Allium peninsulare var. franciscanum*	List 1B.2	Cismontane woodland, valley and foothill grasslands of clay, volcanic, or serpentine soils. 50-300 m. Blooms: May-June	**Not Present.** The project area lacks suitable habitat for this species.
Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	FE, List 1B.1	Marshes and freshwater swamps and riparian scrub. 0-400 m. Blooms: May-June	**Not Present.** The project area lacks suitable freshwater habitat for this species.
Napa false indigo *Amorpha californica* var. *napensis*	List 1B	Broad-leafed upland forest, chaparral, cismontane woodland; in openings in forest or woodland or in chaparral. 120-2000m. Blooms: April-July.	**Not Present.** The project area lacks suitable habitat for this species.
Bent-flowered fiddleneck *Amsinckia lunaris*	List 1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. 50-500 m. Blooms: March - June	**Not Present.** The project area lacks suitable habitat for this species.
Alkali milk-vetch *Astragalus tener* var. *tener*	RP, List 1B	Low ground, alkali flats, and flooded lands in annual grassland or in playas or vernal pools. 1-170 m. Blooms: March-June	**Not Present.** The project area lacks suitable habitat for this species.
Sonoma sunshine *Blennosperma bakeri*	FE, SE, List 1B.1	Occurs in mesic soils of valley and foothill grasslands and vernal pools. 10 - 110 m. Blooms: March- May	**Not Present.** The project area lacks suitable habitat for this species.
Round-leaved filaree *California macrophylla*	List 1B	Clay soils of cismontane woodland, valley and foothill grasslands. 15-1,200 m. Blooms: March-May	**Not Present.** The project area lacks suitable habitat for this species.
Pappose tarplant *Centromadia parryi* ssp. *Parryi*	List 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland; in vernally mesic sites, often with alkali substrate. 0 – 500 m. Blooms: May-November	**Not Present.** The project area lacks suitable habitat for this species.
Sonoma ceanothus *Ceanothus sonomensis*	List 1B	Chaparral; on sandy, serpentine or volcanic soils. 210-800m. Blooms: February-April.	**Not Present.** The project area lacks suitable habitat for this species.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Point Reyes bird's-beak *Chloropyron maritimum* ssp. *Palustre*	List 1B.2	Coastal salt marshes and swamps. 0 - 10 m. Blooms June-October.	**Unlikely.** The project area contains only isolated, sparse salt marsh vegetation surrounded by landscaping and urban development.
Soft bird's beak *Chloropyron molle* ssp. *Molle*	FE, SR, List 1B.2	Coastal salt marshes and swamps. 0-3 m. Blooms July- November.	**Unlikely.** The project area contains only isolated, sparse salt marsh vegetation surrounded by landscaping and urban development.
Sonoma spineflower *Chorizanthe valida*	FE, SE, List 1B.1	Coastal prairie (sandy). 10-305 m. Blooms June – August.	**Not Present.** The project area lacks suitable habitat for this species.
Baker's larkspur *Delphinium bakeri*	FE, SE, List 1B.1	Broad-leafed upland forest, coastal scrub, valley and foothill grassland. Occurs in decomposed shale and often mesic soils. 80-305 m. Blooms: March-May	**Not Present.** The project area lacks suitable habitat for this species.
Golden larkspur *Delphinium luteum*	FE, SR, List 1B.1	Chaparral, coastal prairie, rocky coastal scrub. 0-100 m. Blooms March – May.	**Not Present.** The project area lacks suitable habitat for this species.
Dwarf downingia *Downingia pusilla*	List 2	In mesic areas within valley and foothill grassland and vernal pools. Elevation range: 0 – 500 m. Blooms: March-May	**Not Present.** The project area lacks suitable habitat for this species.
Fragrant fritillary *Fritillaria liliacea*	List 1B	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland; typically associated with clay substrate, often serpentine. 0 – 450 m. Blooms: February-April	**Not Present.** The project area lacks suitable habitat for this species.
Sea-side tarplant *Hemizonia congesta* ssp. *Congesta*	List 1B.2	Sometimes roadsides, valley and foothill grassland. 20-560 m. Blooms: April- November	**Not Present.** The project area lacks suitable habitat for this species.
Marin western flax *Hesperolinon congestum*	FT, CT, List 1B.1	Chaparral, valley, and foothill grassland (serpentine barrens, serpentine grassland). 30 – 365 m. Blooms: April –July	**Not Present.** The project area lacks suitable habitat for this species.
Burke's goldfields *Lasthenia burkei*	FE, SE, List 1B	Vernal pools, swales, meadows and seeps. 0 – 700 m. Blooms: April-June	**Not Present.** The project area lacks suitable habitat for this species.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Contra Costa goldfields *Lasthenia conjugens*	FE, List 1B	Cismontane woodland, alkaline playas, valley and foothill grassland, vernal pools; in mesic portions of wetlands. 0 – 550 m. Blooms: March-June	**Not Present.** The project area lacks suitable habitat for this species.
Legenere *Legenere limosa*	List 1B	Vernal pools. Elevation range: 3 – 2885 feet. Blooms: April – June.	**Not Present.** The project area lacks suitable habitat for this species.
Jepson's leptosiphon *Leptosiphon jepsonii*	List 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. 100 – 550 m. Blooms: April-May	**Not Present.** The project area lacks suitable habitat for this species.
Sebastopol meadowfoam *Limnanthes vinculans*	FE, SE, List 1B	Vernal pools. 0 – 1,000 m. Blooms: April-June	**Not Present.** The project area lacks suitable habitat for this species.
Marsh microseris *Microseris paludosa*	List 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5 - 300 m. Blooms: April- June	**Not Present.** The project area lacks suitable habitat for this species.
Baker's navarretia *Navarretia leucocephala* ssp. *Bakeri*	List 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools. 5-1740m. Blooms April-July.	**Not Present.** The project area lacks suitable habitat for this species.
Petaluma popcorn-flower *Plagiobothrys mollis var. vestitus*	List 1A	Occurs in coastal salt marshes and swamps and mesic areas within valley and foothill grasslands. 15-305 m. Blooms: June-July	**Not Present.** This species is presumed extinct in California.
North Coast semaphore grass *Pleuropogon hooverianus*	List 1B.1, ST	Broad-leafed upland forest, meadows and seeps, North Coast coniferous forest, moist open areas. 10-671 m. Blooms April – June.	**Not Present.** The project area lacks suitable habitat for this species.
Marin knotweed *Polygonum marinense*	List 3.1	Coastal salt or brackish marshes and swamps. 0-10 m. Blooms May – August, uncommonly from April to October.	**Unlikely.** The project area contains only isolated, sparse salt marsh vegetation surrounded by landscaping and urban development.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Pt. Reyes checkerbloom *Sidalcea calycosa ssp. Rhizomata*	List 1B.2	Freshwater marshes and swamps near coast. 3-75 m. Blooms April to September.	**Not Present.** The project area lacks suitable freshwater habitat for this species.
Showy rancheria clover *Trifolium amoenum*	FE, List 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, sometimes on serpentine. 0- 450 m. Blooms: April-June	**Not Present.** The project area lacks suitable habitat for this species.
Mammals			
Pallid bat *Antrozous pallidus*	SSC, WBWG High Priority	Occupies a variety of habitats at low elevation including grasslands, shrub lands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	**Unlikely**. The project area lacks roost habitat for this species, though it may occasionally forage over the grassland.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC	Lives in a wide variety of habitats; day roosts highly associated with caves and mines. Need appropriate roosting, maternity, and hibernation sites free from human disturbance.	**Unlikely.** Project area lacks suitable rocky roost habitat for this species, though it could pass through while foraging.
Western red bat *Lasiurus blossevillii*	SSC, WBWG High Priority	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards or urban areas near riparian habitat.	**Moderate Potential**. The project area contains suitable foliage for roosting on its perimeter and the vineyards, open areas, ponds, and Napa River in the vicinity provide suitable foraging habitat.
Silver-haired bat *Lasionycteris noctivagans*	WBWG Medium Priority	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**Unlikely.** Project area lacks suitable forest roost habitat for this species, though it could pass through while foraging.
Long-eared myotis *Myotis evotis*	WBWG Medium Priority	Found in all brush, woodland and forest habitats from sea level to about 9000 feet. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	**Unlikely.** Project area lacks suitable coniferous forest roost habitat for this species, though it could pass through while foraging.
Fringed myotis *Myotis thysanodes*	WBWG High Priority	Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts.	**Unlikely.** project area lacks suitable forest roost habitat for this species, though it could pass through while foraging.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Birds			
Golden eagle *Aquila chrysaetos*	CFP, BCC	Rolling foothills mountain areas, sage-juniper flats, desert. Cliff-walled canyons or large trees in open areas provide nesting habitat.	**Unlikely.** project area lacks suitable nesting habitat, though this species may forage in the vicinity.
Bald eagle *Haliaeetus leucocephalus*	FD, SE, CFP	Frequents ocean shores, lake margins, and rivers for both nesting and wintering. Most nests are located within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branch work. Roosts communally in winter	**Unlikely.** project area lacks suitable nesting habitat, though this species may forage in the vicinity, along the Napa River.
White-tailed kite *Elanus leucurus*	CFP	Year-long resident of coastal and valley lowlands; rarely found away from agricultural areas. Nests atop oak, willow or other trees. Preys mainly on small mammals but also birds, insects, reptiles and amphibians.	**Moderate Potential.** Suitable nesting habitat is present in oak, ash and willow trees at the perimeter of the project area, and foraging habitat is present in vineyards and grassland.
Prairie falcon *Falco mexicanus*	BCC	Inhabits dry, open terrain, either level or hilly. Nesting sites typically located on cliffs. Forages far afield, even to marshlands and ocean shores.	**Unlikely.** project area lacks suitable nesting habitat, though the species may forage in the vicinity.
Peregrine falcon *Falco peregrinus anatum*	FD, SE, CFP, BCC	Nests near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds, buildings or bridges. Nest consists of a scrape on a depression or ledge in an open site.	**Not Present**. Suitable nesting habitat is not present in the vicinity of the project area.
Western burrowing owl *Athene cunicularia*	SSC, BCC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon small mammal burrows, most often dug by California ground squirrels.	**Not Present.** Burrows were not present and this species is most likely extirpated from Sonoma County.
Northern spotted owl *Strix occidentalis caurina*	FT, SSC	Old-growth forests or mixed stands of old-growth and mature trees. Prefers high, multistory canopy dominated by big trees, trees with cavities or broken tops, woody debris and space under canopy.	**Not Present.** Suitable forest habitat is not present in the project area.
Black swift *Cypseloides niger*	SSC, BCC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf; forages widely.	**Unlikely**. project area lacks suitable nesting habitat.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Purple martin *Progne subis*	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.	**Not Present**. The project area lacks suitable woodland habitat for this species.
Yellow warbler *Dendroica petechia brewsteri*	SSC	Occurs primarily in riparian zones. Prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging.	**Unlikely.** The project area lacks suitable riparian woodland habitat for this species.
Tricolored blackbird *Agelaius tricolor*	BCC, SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey close to the colony.	**Not Present**. project area lacks suitable habitat to support a nesting colony.
Reptiles and Amphibians			
Foothill yellow-legged frog *Rana boylii*	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**Not Present.** No perennial aquatic habitat is present in the project area.
California red-legged frog *Rana draytonii*	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 10- 20 weeks of water for larval development. May disperse through upland habitats after rains to access aestivation habitat.	**Unlikely.** This species may be present along the Napa River or in retention ponds adjoining the project area. However, the graded and disced fields of the project area would provide poor aestivation habitat for this species.
Western pond turtle *Actinemys marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**Unlikely.** This species may be present in the Napa River or in ponds adjoining the project area. However, the graded and disced fields of the project area would provide poor upland nesting habitat for this species.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Fishes			
Delta smelt *Hypomesus transpacificus*	FT	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**Not Present**. No perennial aquatic habitat present in the project area.
Steelhead, Central California Coast ESU *Oncorhynchus mykiss*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Not Present**. No perennial aquatic habitat present in the project area.
Steelhead, Central Valley ESU *Oncorhynchus mykiss*	FT	Occurs in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays. Preferred spawning habitat is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**Not Present.** The project area is outside the range of this species.
Chinook, California Coastal *Oncorhynchus tshawytscha*	FT	California Coastal Chinook Salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**Not Present**. No perennial aquatic habitat present in the project area.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
Chinook, Central Valley spring run *Oncorhynchus tshawytscha*	FT	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	**Not Present**. No perennial aquatic habitat present in the project area.
Chinook, Central Valley Fall/Late Fall-run ESU *Oncorhynchus tshawytscha*	FC, SSC	Populations spawn in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool clear, well-oxygenated streams. Juveniles remain in freshwater 1 or more years before migrating downstream to the ocean.	**Not Present**. No perennial aquatic habitat present in the project area.
Invertebrates			
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberry 2 to 8 inches in diameter.	**Not Present.** No elderberry shrubs present in project area.

TABLE IV.D-1 SPECIAL STATUS PLANT AND WILDLIFE SPECIES THAT MAY OCCUR, OR ARE KNOWN TO OCCUR IN HABITATS SIMILAR TO THOSE FOUND ON THE HUNTER SUBDIVISION PROJECT AREA *(CONTINUED)*

Species	Status	Habitat Requirements	Potential for Occurrence
California freshwater shrimp *Syncaris pacifica*	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low-gradient streams where riparian cover is moderate to heavy, in shallow pools away from main stream flow..	**Not Present.** Suitable stream habitat is not present in the project area

Status Codes

FE	Federally Endangered	SE	State Endangered
FT	Federally Threatened	ST	State Threatened
FD	Federally Delisted	CFP	California Fully Protected Species
BCC	USFWS Bird of Conservation Concern	SSC	California Species of Special Concern

California Native Plant Society (CNPS):

1A Plants Presumed Extinct in California
1B Plants rare, threatened, or endangered in California and elsewhere
2 Plants rare, threatened, or endangered in California but more common elsewhere
3 Plants about which information is needed-a review list
.1 - seriously threatened in California (high degree/immediacy of threat)
.2 - fairly threatened in California (moderate degree/immediacy of threat)
.3 - not very threatened in California (low degree/immediacy of threats or no current threats known)

Source: List compiled from CNDDB (CDFG 2011) and CNPS Electronic Inventory (CNPS 2011) for the St. Helena, Yountville, Kenwood, Rutherford, Chiles Valley, Calistoga, Walter Springs, Detert Reservoir, and Aetna Springs USGS 7.5" quadrangles, and USFWS Species lists (USFWS 2011) for the St. Helena, Kenwood, Rutherford and Calistoga USGS quadrangles.

TABLE IV.D-2 PLANT AND WILDLIFE SPECIES OBSERVED ON THE HUNTER SUBDIVISION PROJECT SITE IN ST. HELENA DURING THE NOVEMBER 3, 2011 SITE VISIT

Scientific Name	Common Name
PLANTS	
Aesculus californica	California buckeye
Avena sp.	Oat
Baccharis pilularis	Coyote brush
Brassica nigra	Black mustard
Bromus diandrus	Ripgut grass
Bromus hordeaceus	Soft chess
Cynodon dactylon	Bermuda grass
Epilobium brachycarpum	Summer cottonweed
Erodium botrys	Broad-leaf filaree
Fraxinus latifolia	Oregon ash
Hordeum sp.	Barley
Kickxia elatine	Fluellin
Lactuca serriola	Prickly lettuce
Lolium multiflorum	Italian ryegrass
Lythrum hyssopifolium	Hyssop loosestrife
Picris echioides	Bristly ox-tongue
Plantago lanceolata	English plantain
Quercus lobata	Valley oak
Raphanus sativus	Wild radish
Rosa californica	California wild rose
Rubus armeniacus	Himalayan blackberry
Rumex crispus	Curly dock
Salix laevigata	Red willow
WILDLIFE	
Agelaius phoeniceus	Red-winged blackbird
Aphelocoma californica	Western scrub jay
Callipepla californica	California quail
Carpodacus mexicanus	House finch
Charadrius vociferus	Killdeer
Circus cyaneus	Northern harrier
Melozone crissalis	California towhee
Psaltriparus minimus	Bushtit
Regulus calendula	Ruby-crowned kinglet
Sialia mexicana	Western bluebird
Turdus migratorius	American robin
Zonotrichia leucophrys	White-crowned sparrow

Source: WRA Environmental Consultants, 2011.

Special-Status Plant Species. Several special-status plant species have also been reported from Napa County and the area of St. Helena. Special-status plant species with potential to occur in the area are listed in Table IV.D-1. None of these species were considered likely to occur on the site, because of recent extensive grading and the resulting absence of suitable habitat. Although systematic surveys have not been conducted to conclusively determine the presence or absence of rare plants on the site, the extent of past disturbance, disking and fill activities on the site likely precludes the occurrence of populations of special-status plant species.

(3) Wetlands

Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level because of their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and their water recharge, filtration, and purification functions.

The CDFG, Corps, and Regional Water Quality Control Board (RWQCB) have jurisdiction over modifications to stream channels, river banks, lakes, and other wetland features. Jurisdiction of the Corps is established through the provisions of Section 404 of the Clean Water Act, which prohibits the discharge of dredged or fill material into “waters” of the United States without a permit, including wetlands and unvegetated “other waters of the U.S.” The Corps uses three mandatory technical criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) to determine whether an area is a jurisdictional wetland. All three of the identified technical criteria must be present for an area to be identified as a wetland under Corps jurisdiction, unless the area has been modified by human activity and one or more of the criteria are not observable. The RWQCB is responsible for maintaining water quality standards of the State, and must issue a waiver or certification under Section 401 of the Clean Water Act whenever a Corps permit is to be authorized. The RWQCB can also regulate waters of the State under the Porter Cologne Act for any isolated wetlands not recognized as jurisdictional by the Corps. Jurisdictional authority of the CDFG over aquatic habitat areas is established under Section 1600 of the Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying the Department, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement.

The reconnaissance site survey conducted on November 3, 2011 revealed that filling and re-grading of the portion of the project site involved with the Napa River flood control project, and subsequent maintenance to provide positive drainage, resulted in no new wetland formation. However, it appears that a

portion of drainage ditch located along the southeastern edge of the property is likely a jurisdictional water of the U.S. that was not included in a delineation review area or previously verified by the Corps in 2008.

b. Regulatory Setting

Policies relevant to the biological resources from both the current General Plan (1993) and the Draft General Plan update are listed below.

(1) Existing 1993 General Plan

The following policies from the existing 1993 General Plan Open Space and Conservation Element are relevant to biological resources and the proposed project.

OPEN SPACE AND CONSERVATION
Vegetation and Wildlife
POLICY 6.2.10 Protect natural habitats which have the potential to support rare, endangered, or special status wildlife and plant species.
Outdoor Recreation
POLICY 6.4.3 Ensure convenient public access between developed areas and stream corridors by providing access at frequent intervals.
POLICY 6.4.4 Ensure adequate access to open space areas for maintenance and management purposes.
Preservation and Provision of Trees
POLICY 6.4.11 Integrate existing significant trees into future development.
POLICY 6.4.12 Require replacement trees where existing significant trees cannot be saved
POLICY 6.4.13 Require street trees as a condition of new development.

(2) Draft General Plan Update

The following policies and actions from the St. Helena Draft General Plan Update Open Space and Conservation Element are relevant to biological resources and the proposed project:

OPEN SPACE AND CONSERVATION
Natural Habitat and Biodiversity
POLICY OS1.4 Protect natural habitats that have the potential to support rare, endangered or special-status wildlife and plant species.
IMPLEMENTING ACTION OS1.A Develop and adopt an ordinance for the protection, restoration and enhancement of creek corridors. The ordinance should consider the following: Encourage the use of bio swales, off-stream detention ponds and other green best practices for stormwater management.
IMPLEMENTING ACTION OS1.H Require a biological assessment of any proposed project site where species or the habitat defined as sensitive or special-status by the California Department of Fish and Game, NOAA Fisheries or the U.S. Fish and Wildlife Service might be present. Avoid potential impacts on sensitive resources as part of new development to the maximum extent feasible. Where complete

OPEN SPACE AND CONSERVATION
avoidance is not possible, the project applicant must secure any required authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is no net loss in habitat acreage or values.
IMPLEMENTING ACTION OS1.J Require new development to be sited to maximize the protection of native tree species, riparian vegetation, important concentrations of natural plants and sensitive wildlife habitat.
IMPLEMENTING ACTION OS1.P As part of new development, avoid disturbance to and loss of bird nests in active use by scheduling vegetation removal and new construction during the non-nesting season (September through January) or by conducting a preconstruction survey by a qualified biologist if vegetation removal and construction is initiated during the nesting season (February through August). Surveys for nesting birds will be conducted no earlier than 14 days prior to tree removal and/or breaking ground; in the event that nesting birds are found, the project applicant will consult with CDFG and obtain approval for nest-protection buffers prior to tree removal and/or ground-breeding activities, and nest protection buffers will remain in effect until the young have fledged.
IMPLEMENTING ACTION OS1.P Avoid potential impacts on jurisdictional wetlands and other waters as part of new development to the maximum extent feasible. Where complete avoidance is not possible, the project applicant must secure any required authorizations from jurisdictional agencies and provide adequate replacement mitigation to ensure there is no net loss in habitat acreage or values.
Open Space
POLICY OS2.6 Support floodplain management strategies that ensure adequate open space for flood management consistent with Living River Principles, FEMA and State requirements. (Also see the Public Health, Safety and Noise Element for additional policies and implementing actions relating to flood management.)
IMPLEMENTING ACTION OS2.B Adopt a land dedication ordinance that requires developers to provide land and improvements, such as trails and revegetation, along both sides of creek corridors as a condition of subdivision approval. The width of dedicated corridors should be established in consultation with the California Department of Fish and Game.
IMPLEMENTING ACTION OS2.D Provide for open space opportunities by including passive and active recreation areas within projects as they develop.
Water Quality and Conservation
POLICY OS3.1 Promote stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques to best manage stormwater through conservation, on-site filtration and water recycling, and ensure compliance with the National Pollution Discharge Elimination System (NPDES) permit.
POLICY OS3.2 Reduce stormwater runoff in developed areas to protect water quality in creeks. Incorporate sustainable low impact design features in the design of infrastructure.
POLICY OS3.3 Promote water conservation through the policies and implementing actions in Chapter 4.
IMPLEMENTING ACTION OS3.A Manage stormwater runoff in compliance with the City's Stormwater and Runoff Pollution Control Ordinance, Stormwater Management Standards for Construction and Post-Construction, and the Development Manual Stormwater Standards, to ensure compliance with the City's NPDES permit. Implement a surface water quality monitoring program to evaluate the effectiveness of stormwater management program activities in reducing the discharge of pollutants to receiving waters to the maximum extent practicable.
IMPLEMENTING ACTION OS3.C Minimize stormwater runoff and pollution by encouraging low impact design features, such as pervious parking surfaces, bio swales and filter strips in new development projects. The City should be a model for incorporating low impact design elements as it implements streetscape and landscape improvements. In addition, The City should retrofit the existing public landscape with natural vegetative coverings that can help detain stormwater and reduce pollution attributable to runoff. (Also see the Community Design Element, Topic Area 1)

OPEN SPACE AND CONSERVATION
Healthy Living Environment
POLICY OS4.1 Protect and enhance tree resources in developed and undeveloped areas. Efforts may include: adequate maintenance of street trees; requiring replacement trees where existing significant trees cannot be saved; and requiring street trees as a condition of new development.

2. Impacts and Mitigation Measures

The analysis of the impacts related to biological resources that could result from implementation of the proposed project is presented below. This section begins with criteria of significance, which establish the thresholds for determining whether a project impact is significant, and then identifies less-than-significant impacts, and potentially significant biological impacts associated with the proposed project. Where necessary, mitigation measures are recommended that would reduce significant impacts to a level of less than significant, where feasible. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.D-3.

TABLE IV.D-3 BIOLOGICAL RESOURCES IMPACTS SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LTS with Mitigation (see Impact BIO-1 on page 142)
▪ Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	LTS (see page 141)
▪ Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, tilling, hydrological interruption, or other means?	LTS with Mitigation (see Impact BIO-2 on page 143)
▪ Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	LTS (see page 142)
▪ Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Focused out in Initial Study (see page 140)
▪ Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or slate habitat conservation plan?	Focused out in Initial Study (see page 140)

Source: Urban Planning Partners, 2012.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on biological resources and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to biological resources and a summary of comments submitted during the scoping period relevant to the scope of the analysis is also provided.

(1) CEQA Significance Criteria

Utilizing Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or the U.S. Fish and Wildlife Service (USFWS).
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or the USFWS;
- Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- Substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery site.
- Conflict with any local policies or ordinances protecting biological resources, such as those outlined within the City of St. Helena or General Plan; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study determined that the project would have no impact with regard to the following two biological resources criteria:

- Conflict with any local policies or ordinances protecting biological resources, such as those outlined within the City of St. Helena General Plan; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

As a result, no further discussion of these criteria is provided in this EIR.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

There were no comments specific to biological resources.

b. Less-than-Significant Biological Resources Impacts

The following impacts of the proposed project have been found to be less than significant.

(1) Special-Status Plants and Species Habitat

The impacts of the proposed project on sensitive plants and vegetative communities would be less than significant because of the absence of any special-status plant species, the surrounding agriculture and development, and the limited habitat value of the site.

The grassland areas of the site provide limited habitat for wildlife because of mowing and disking. Small mammals, reptiles or grassland birds may occur in this area, and it may serve as raptor foraging habitat. However, alternative burrowing and foraging habitat is available on the opposite side of the levee, which is set aside as floodplain and protected from development. The availability of alternative habitat, in addition to the small size and limited current habitat value of the project site, make impacts of development on grassland less than significant.

One special-status bat species, western red bat, could use mature trees at the perimeter of the site for day or maternity roosts. These trees will not be removed as part of the project, and are located more than 50 feet from the potential work area, making it unlikely that construction activity would cause a disturbance to potential roosting bats. Thus, impacts to this special-status species are less than significant and no mitigation is required. Another special status species, white-tailed kite, may occur in this area, and impacts to this species are potentially significant (see Impact BIO-1 below).

(2) Riparian Habitat

Some riparian vegetation is present in the drainage ditch, but work is not planned in this area, so no impacts to riparian habitat are expected. The Napa River and its associated riparian habitat is more than 500 feet from the project site, which is separated from the river physically and visually by a levee and a detention basin; thus, no impacts to riparian habitat along the Napa River are expected.

(3) Wetlands

The project would not have a substantial adverse effect on federally-protected wetlands through direct removal, filling, hydrological interruption, or other means because no wetland areas are present in the work area. A small drainage ditch located along the southern property line may be impacted by the proposed project (see Impact BIO-2 below).

(4) Migratory Wildlife Corridors

The project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or nursery sites. The project is adjacent to already-developed areas on three two sides and is separated by a new flood control levee from the Napa River. The flood control levee protects a new riparian zone along the river, which provides an important migratory corridor for wildlife. The project will not impact this migratory corridor.

b. Significant Biological Resources Impacts

Two potentially significant impacts could result from implementation of the proposed project.

Impact BIO-1: Development of the proposed project could potentially harm nesting special-status or common migratory birds. (S)

Nesting habitat for raptors, including white-tailed kite, is available in oak, ash, and other trees located at the perimeter of the site. In addition, shrubs, including blackberry thickets along the southern edge of the site could provide nesting habitat for migratory songbirds. Although the project would not remove trees or shrubs, construction noise and disturbance in the vicinity of nesting habitat could result in nest abandonment. Impacts to nesting special-status or common migratory birds are prohibited under the Migratory Bird Treaty Act. The following mitigation measure would reduce this potential impact to a less than significant level.

> Mitigation Measure BIO-1: In order to avoid impacts to special-status birds protected under California Fish and Game Code, and other nesting birds protected under the Migratory Bird Treaty Act, breeding bird surveys in trees and shrubs surrounding the work site and grasslands and vineyards on the site shall be completed prior to any commencement of construction activities during the breeding season (February through August). A qualified biologist shall conduct a survey within two weeks prior to ground disturbance. If an active nest is found, a suitable buffer will be established around the nest and work will be avoided within this buffer until young have fledged. However, if any construction work is to be conducted outside of the breeding season (September through January), no breeding bird surveys are required. (LTS)

Impact BIO-2: Development of the proposed project could potentially impact portions of the drainage ditch which is Section 404 waters of the U.S. (S)

Construction of a wall on or near the property line could potentially impact the drainage ditch by filling or needing to be culverted. If the drainage ditch is impacted in such a manner, it could fill jurisdictional waters of the U.S., alter existing flow characteristics, and remove vegetation considered useful in storm runoff filtering.

> Mitigation Measure BIO-2: If the drainage ditch or a portion of the drainage ditch is impacted by filling or is culverted, the existing flow characteristics of the ditch must be determined by a qualified hydrologist so that drainage can and shall be engineered to accommodate flow as it was prior to the impact. If filling or culverting results in removal of vegetation below the ordinary high water mark, mitigation shall include increasing the area of vegetation below the ordinary high water mark elsewhere in the ditch, such as by widening a portion of the ditch or increasing its length. Widening or lengthening shall replace jurisdictional waters of the U.S. area at a minimum functions and values ratio of 1:1. Low Impact Development (LID) techniques within the development could be substituted or used in combination with increasing vegetated area below the ordinary high water mark in the ditch, and the substitution or combination shall be equal to a minimum functions and values ratio of 1:1. (LTS)

E. CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the baseline conditions for cultural and paleontological resources in the Hunter Subdivision Project area, identifies potentially significant project-related impacts to such resources, and recommends mitigation measures to avoid or minimize significant impacts.

Cultural resources are sites, buildings, structures, objects, and districts that may have traditional, historical, or cultural value. In planning, these values are identified through a process of significance assessment guided by CEQA and the CEQA guidelines. Cultural resources can include a wide variety of resources, such as archaeological deposits, historical railroad tracks, and buildings of architectural significance. Generally, for a cultural resource to be considered a historical resource under CEQA it must be 50 years or older.[1]

Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. These resources may also include plant imprints, petrified wood, and animal tracks.

CEQA requires that effects to historic resources be considered in the planning process for discretionary projects. The Initial Study concluded, based on the previous study completed for the site and surrounding area as part of the St. Helena Comprehensive Flood Protection Project (Flood Protection Project), that the project site likely contains potentially significant archaeological, Native American, human remains and/or historical resources. As a result, this section analyzes potential impacts to all cultural resources.

1. Setting

This section presents the existing and regulatory conditions for cultural and paleontological resources in the project area.

a. Existing Setting

The following subsections provide: (a) methods of the analysis; (b) an overview of the area's cultural and paleontological background; and (c) a list of recorded cultural and paleontological resources in the project area.

(1) Methods

Background research for this section consisted of a records search, literature review, Native American consultation, and a paleontological resources assessment. This research was conducted to identify cultural resources and

[1] California Office of Historic Preservation, 2006:3. California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register). Technical Assistance Series No. 6. California Department of Parks and Recreation, Sacramento.

paleontological resources in and adjacent to the project area. The results were also used to understand the archaeological, ethnographic, and historical setting of the project area.

Records Search. A records search (File #11-0514) of the project area and a ¼-mile radius was conducted on January 6, 2012 by the North West Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resources records and reports for Napa County.

As part of the records search, the NWIC reviewed the following State of California inventories for cultural resources in and adjacent to the project area:

- California Inventory of Historic Resources.
- California Historical Landmarks.
- California Points of Historical Interest.
- Directory of Properties in the Historic Property Data File. The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

Literature Review. WSA reviewed prehistoric, ethnographic, and historical literature and maps for information about the project area. These sources were used to develop the environmental and cultural setting for the project. The cultural setting includes the prehistoric, ethnographic, and historical background of the project area. WSA also reviewed technical reports of previous archaeological work conducted within the project area.

Native American Consultation. The Native American Heritage Commission (NAHC) was contacted as part of the background research for this analysis. On October 19, 2011, WSA contacted the NAHC by letter to request information on known Native American sacred lands within the project area and to request a listing of individuals or groups with a cultural affiliation to the project area. The NAHC responded by letter on November 16, 2011. The letter stated that a search of the sacred land file had failed to indicate the presence of Native American cultural resources in the immediate project area. A list of Native American contacts was included in the response with a recommendation to contact them individually. On November 17, 2011, WSA sent letters to the following two contacts identified by the NAHC, requesting comment on the project: Ya-Ka-Ama; and Scott Gabaldon, Chairperson, Mishewal-Wappo Tribe of Alexander Valley.

Paleontological Resources Assessment. A paleontological resources assessment was conducted by James R. Allen, M. Sci., PG #8335, on February 1,

2012. The purpose of the assessment was to identify the potential for paleontological resources within the project area.

(2) Cultural and Paleontological Background

This section summarizes the prehistoric, ethnographic, and historical background of the project area and its vicinity. A brief description of the paleontological background follows.

Prehistory and Ethnography. Analysis of archaeological sites in the Napa Valley indicates that the region has been occupied, at least intermittently, for at least 5,000 years.[2] The project area is attributed ethnographically to the Southern Wappo, who spoke one of five dialects of the Wappo language. The ethnographic boundary for the Wappo in the mountainous region northeast and east of Napa Valley is uncertain—some areas may have been occupied at different times by the Wappo, Lake Miwok, Wintun, and Patwin.[3,4,5]

Linguistically, the Wappo are part of the Yukian language family, a small and very old family.[6,7] Kroeber and Driver regard the name Wappo as an Americanization of the Spanish *guapo*, meaning, "brave." The Wappo may have referred to themselves as Kolijolmanok, or "People who lived back up in the woods."[8,9] Kroeber reported three primary southern Wappo settlements, including Kaimus or Caymus at Yountville, Anakotanoma near St. Helena in the Napa River drainage, and Tsemanoma located approximately 4 miles northeast of St. Helena.

There was no overall unification among the Wappo. Headmen or chiefs exercised leadership through strength of personality, with the mark of rank noted by a string of beads. The chief's four important functions were described as war chief, town chief, dance/ceremonial chief, and news carrier/town crier. All men of the

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[2] Michael J. Moratto, 1984. *California Archaeology*. Academic Press, Orlando, Florida.

[3] Samuel A. Barrett, 1908. The Ethnogeography of the Pomo and Neighboring Indians. University of California Publications in American Archaeology and Ethnology 6(1):1-332, Berkeley, California, pp. 264-265.

[4] Alfred L. Kroeber, 1925. *Handbook of the Indians of California*. Bureau of American Ethnology of the Smithsonian Institution. Bulletin 78, Washington D.C., pp. 219 and 273.

[5] Stephen Powers, 1877. Tribes of California. Contributions to North America Ethnology, Vol. III, Dept. of the Interior, U.S. Geographical and Geological Survey. Washington, D.C., p. 218. [Reprint by University of California Press, 1976.]

[6] Harold E. Driver, 1936. Wappo Ethnography. In University of California Publications in American Archaeology and Ethnology 36(1):179-220, p. 183. Berkeley, California.

[7] Jesse O. Sawyer, 1978. Wappo. In: Handbook of North American Indians. Volume 8, pp. 256-264, California. Robert F. Heizer, ed. Smithsonian Institution, Washington, D.C.

[8] Robert F. Heizer, 1953. The Archaeology of the Napa Region. *Anthropological Records*, 12 (6), pp. 225-358. University of California Press, Berkeley, California.

[9] Sawyer, op. cit.: 263.

community discussed group affairs in meetings. Men and women were reported to share tasks such as gathering acorns and wood, carrying water, and packing during journeys. Most men hunted and fished, making their own equipment and clothing. They built houses and made musical instruments, beads, and ornaments. Women made all utensils and baskets, tanned hides for their clothing, gathered grass seeds, prepared food, and gathered grass for house coverings.[10]

The Wappo settlement pattern involved two types of habitation sites: permanent winter villages and temporary summer villages. Both temporary and permanent villages included sweathouses, subterranean earth-covered dwellings and dance houses, and summer brush structures. Smaller temporary camps were established near important resource areas. The Wappo shared many cultural traits with their Pomo neighbors, including excellent basketry skills and the practice of cremating the dead.[11] Wappo territory included Glass Mountain, a primary Napa Valley obsidian source, located 2 miles north of St. Helena. Controlling the use of Napa obsidian would have provided the Wappo with access to a wide range of exchange goods from the Bay Area, the Central Valley, and elsewhere in the North Coast Ranges.[12]

Between the 1820s and 1840s, the Napa region was transformed by the displacement of the native inhabitants by new settlers during the Mexican and early American periods. Epidemics, warfare, and the disruption of the traditional community's basic relationship to the land and its resources were major factors in the rapid decline of the native population of California during the 19th century.[13,14]

Nelson conducted the first recorded archaeological work in Napa County in 1909.[15] In the 1940s, University of California, Berkeley archaeologists concentrated on excavating several large habitation sites within Napa Valley. Heizer's *Archaeology of the Napa Region* presents a comprehensive summary of this work and formed the basis for the development of cultural chronologies for the Napa Valley, and it remains the definitive document for early archaeological work in Napa County.

History. The establishment of Spanish Missions had been the catalyst for early settlement in other parts of the Bay Area during the years of Spanish colonial

[10] Driver, op cit.

[11] Kroeber, op. cit.: 221

[12] James A. Bennyhoff, 1977. The Napa District and Wappo Prehistory. In *Toward a New Taxonomic Framework for Central California Archaeology. Essays by James A Bennyhoff and David A. Fredrickson*, Richard E. Hughes, editor, pp. 49-56. Contributions of the University of California Archaeology Research Facility 52. Berkeley, California.

[13] Sherburne F. Cook, 1976. *The Conflict Between the California Indian and White Civilization*. University of California Press, Berkeley, California.

[14] Heizer, op. cit.

[15] Moratto, op. cit.

rule; however, land north of San Francisco was not incorporated into the Mission system until much later. The region surrounding the current project area was not visited by an official exploratory party until after Mexico had gained its independence from Spain and taken control of the Missions, which remained the most prominent reminder of Spain's former ambitions.

The first recorded expedition into what is now Napa County was made in 1823. That exploration began on June 25, 1823 when Francisco Castro, a Spanish soldier who, with Father José Sánchez and Father José Altimira, led a scouting party out of San Francisco to locate a site for a future Mission. After stopping at Mission San Rafael, which had been founded in 1817, the men visited sites in Petaluma, Sonoma, and Napa, and ultimately chose Sonoma as the site for the new Mission San Francisco Solano. The founding of Mission San Francisco Solano in 1823 extended European influence more directly into the Napa Valley, although southern Napa Valley had already been largely depleted of California Indians who had been taken to Mission San Rafael as neophytes. Settlements were established inland for maintenance of the Mission system's expanding grazing lands, and Napa and Petaluma were selected as mission cattle ranches to support the new mission. Despite this apparent growth in the Mission system, the Mexican government, which found the Missions difficult to pay for and administer, soon secularized the entire system.[16]

The land surrounding the project area was settled by an Englishman who had become a part of the Mexican rancho economy and culture. Edward Turner Bale, a doctor who was appointed the surgeon general of Alta California by General Vallejo, married one of the general's nieces and became a naturalized citizen of Alta California. He received the grant of Rancho Carne Humana in 1843 and built an adobe, sawmill and gristmill on his property. The gristmill is now the center of Bale Grist Mill State Historic Park, located on SR 29, 3 miles north of St. Helena.[17]

Following the U.S. takeover of Alta California from Mexico in 1848, rancho lands began to be divided up and generally overrun by Anglo immigration to the area that was coincident with the land boom following the Gold Rush of 1849. The 1850s marked a period of intense livestock grazing that continued in the Napa River watershed for more than 150 years. The American Period also saw the introduction of large-scale farming in the Napa Valley.[18]

By 1868, the Napa Valley Railroad reached Calistoga and was an important component of the local transportation system that moved goods to market. Likewise, local rail stops encouraged development in between the largest

[16] Douglas E. Kyle, 1990. *Historic Spots in California*. 4th Edition. Stanford University Press, Palo Alto, California, p. 231.

[17] Kyle, op. cit., p. 232.

[18] Kyle, op. cit., p. 237.

population centers. In addition to the newly established railroad, water transport along the Napa River provided access to Pacific trade by allowing commercial transport to San Pablo and San Francisco Bays, and the Pacific Ocean.[19,20,21]

By the late 19th century, viticulture had become an important feature of both the local culture and economy. The 1870s marked a period of growth in the Napa Valley wine industry, leading to an increase in the use of Chinese laborers. Many Chinese laborers had arrived in the valley to build the Napa Valley Railroad and remained to work in viticulture. An economic depression in the mid-1870s and a phylloxera outbreak in the Napa Valley forced many wine businesses to close. The wine industry continued to grow with setbacks associated with the 1906 San Francisco earthquake and prohibition in 1920. As the result of prohibition, the wine industry in California and the Napa Valley did not recover until the 1950s. Since then, wine production and tourism have steadily increased, and Napa Valley is now well known for its vineyards and premier wines.[22]

Paleontological Setting. The surface geology of the proposed Project consists of Holocene deposits mapped as coarse-grained alluvium (Qhac) and medium-grained alluvium (Qham). Both sedimentary units were deposited in a fluvio-lacustrine system (rivers and lakes) in the past 8,000 years or less. Holocene deposits (Qhac and Qham) of clayey silt are not regarded as paleontologically significant because they are too young.

(3) Recorded Cultural and Paleontological Resources

This section describes the existing conditions for cultural resources in the project area, followed by those for paleontological resources. The cultural resources existing conditions consist of the results of the records search, literature review, Native American consultation, and the paleontological resources assessment.

Records Search Results. A review of the NWIC database indicated that there are two previously recorded archaeological sites within the project area (CA-NAP-406 and CA-NAP-1008) as listed in Table IV.E-1. Thirteen additional sites, historic buildings or features, and isolated finds within one ¼-mile radius of the project area as listed in Table IV.E-2. Four cultural resource studies have been undertaken that include the project area and an additional 15 studies have been conducted within ¼-mile of the project area.

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[19] Kyle, op. cit.

[20] Lewis Publication Company, 1891. *Napa County History: A Memorial and Biographical History of Northern California*. Chicago, Illinois.

[21] Charles Nordhoff, 1873. *California for Health, Pleasure, and Residence: A Book for Travelers and Settlers*. Harper & Brothers, New York. Reprinted 1973, Ten Speed Press, Berkeley, California.

[22] David Gardner, 1977. *Suscol in Napa County: An Historic Report 1835-1977*. California Historical Society, San Francisco.

TABLE IV.E-1 CULTURAL RESOURCES WITHIN THE PROJECT AREA

Primary No. or Site No.	Site Type and Period	Components	References
P-28-000307 CA-NAP-406	Low density obsidian lithic scatter, Lower Archaic (6000 BC to 3000 BC) to Middle Archaic (3000 BC to 500 BC) Periods	Obsidian debitage, one groundstone fragment, no associated midden soil	Beard 1976a; Garaventa et. al. 1995; Bartoy and Holson 2005; Bartoy et. al. 2005;
P-28-001267 CA-NAP-1008	Low density lithic scatter, Upper Archaic Period (500 BC to AD 900) to Lower Emergent Period (AD 900-AD 1500)	Obsidian and basalt debitage, worked obsidian and basalt fragments, no associated midden soil	Bartoy and Holson 2005; Bartoy et. al. 2005

Source: NWIC Database, 2012.

TABLE IV.E-2 CULTURAL RESOURCES WITHIN ¼-MILE OF THE PROJECT AREA

Primary No. or Site No.	Site Type and Period	Components	Reference
P-28-000009 CA-NAP-863	Prehistoric midden deposit, Middle Archaic (3000 BC to 500 BC) to Upper Archaic Period (500 BC to AD 1000)	Obsidian, chert, and basalt debitage, blanks, performs, points, grinding equipment, hammerstones, crystals, steatite disk bead, human remains	Origer 1994; Bartoy and Holson 2005; Bartoy et. al. 2005
P-28-000150 CA-NAP-158	Low density lithic scatter, no chronology available	Artifacts included obsidian points, bifaces, and debitage	Squier and Greengo 1951; Beard 1976b
P-28-000301 CA-NAP-399	Prehistoric midden deposit, Middle Archaic (3000 BC to 500 BC) to Lower Emergent Period (AD 900-AD 1500)	Midden deposit including faunal bone; shell; obsidian and basalt debitage, bifaces, modified flakes and cores; groundstone ;human remains; and fire-affected rock	Beard 1976c; Bartoy and Holson 2005; Bartoy et. al. 2005
P-28-000313 CA-NAP-413	Low density lithic scatter, Lower Emergent Period (AD 900-AD 1500)	Obsidian debitage and worked obsidian fragments, a pestle fragment, and a magnesite fragment	Beard 1976d; Bartoy and Holson 2005; Bartoy et. al. 2005
P-28-000701 CA-NAP-843	Low density lithic scatter, no chronology available	Obsidian debitage and worked obsidian fragments, no associated midden	Abell 1993; Bartoy and Holson 2005; Bartoy et. al. 2005
P-28-000770	Historic building, 20th century	St. Helena Ranger Unit Headquarters, built in 1939	Thornton 1994
P-28-000790	Historic building, 20th century	U.S. Post Office, built in 1940-1941	Heidecker 1996
P-28-000966	Historic railroad, 20th century	Napa Valley Railroad line, built in early 20th century	Roop 1997; Germano and Stewart 2006

Primary No. or Site No.	Site Type and Period	Components	Reference
P-28-001263 CA-NAP-1007	Low density lithic scatter, Middle Archaic (3000 BC to 500 BC) to Lower Emergent Period (AD 900-AD 1500)	Obsidian, basalt, and CCS debitage; and worked obsidian, no associated midden	Bartoy and Holson 2005; Bartoy et. al. 2005
P-28-001264	Isolated find	One unifacially-worked obsidian tool	Bartoy and Holson 2005
P-28-001265	Isolated find	One unifacially-worked obsidian tool	Bartoy and Holson 2005
P-28-001266	Isolated find	One unifacially-worked obsidian tool	Bartoy and Holson 2005
P-28-001268 CA-NAP-1009/H	Historic stone wall, early to mid-20th century	Dry-laid stone wall along river terrace	Bartoy and Holson 2005; Bartoy et. al. 2005

Source: NWIC Database, 2012.

Literature Review Results. Based on a review of previous surveys conducted within the project area, the entire project area has been previously subjected to archaeological survey.[23,24,25] No additional archaeological survey was necessary for the current project.

Two previously recorded archaeological sites are located within the current project area. Site CA-NAP-1008 is a low density lithic scatter located in the eastern part of the current project area. The site was identified and recorded during a 2005 survey for the Flood Protection Project. As one of eight archaeological sites identified within the Flood Protection Project Area of Potential Effect (APE) in 2005, Phase II evaluations were conducted at the site to determine if it constituted a "historic property" (eligible for inclusion on the NRHP) or a "historical resource" (eligible for inclusion on the CRHR).[26] Based on the Phase II findings, Bartoy et. al. recommended that because of low density of

[23] Donna M. Garaventa, , Stuart A. Guedon, and Melody E. Tannam, 1995. Positive Archaeological Survey, Pope Street Bridge Replacement Project, City of St. Helena, Napa County, California. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, California (S-18532).

[24] Kevin M. Bartoy and John Holson, 2005. Extended Archaeological Survey for the St. Helena Flood Protection Project, City of St. Helena, Napa County, California. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, California (S-030250).

[25] Kevin M. Bartoy, 2006. Addendum Archaeological Survey of the Hunter Parcel, St. Helena, Napa County, California. On file at Pacific Legacy, Berkeley, California.

[26] Kevin M. Bartoy, John Holson, Lauren Rosenthal, and Heather Blind, 2005. Archaeological Investigations and Evaluation of Eight Sites in the Napa River Floodplain for the St. Helena Flood Protection Project, City of St. Helena, Napa County, California. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, California (S-030897).

cultural materials and the low degree of integrity at CA-NAP-1008, the deposit failed to meet the requirements of eligibility for inclusion in the NRHP or the CRHR. They recommended that the site was not potentially-eligible for inclusion in the NRHP or the CRHR, and that if the California State Historic Preservation Officer (SHPO) concurred, the Flood Protection Project would have no effect on the site because it would not be considered a historic property.[27] Based on this recommendation, the California State Water Resources Control Board (SWRCB) and the United States Army Corps of Engineers (ACOE) determined that three of the eight sites evaluated through Phase II investigations were eligible for the NRHP under 36 CFR§60.4(d), but CA-NAP-1008 was not among them. The SHPO reviewed the information supporting this conclusion and concurred on the determination of NRHP eligibility in December 2006.[28]

Site CA-NAP-406 is a low density lithic scatter that intersects the western part of the current project area. As another one of the eight archaeological sites identified within the Flood Protection Project APE in 2005, Phase II evaluations were conducted at the site to determine if it constituted a "historic property" (eligible for inclusion on the NRHP) or a "historical resource" (eligible for inclusion on the CRHR).[29] Based on the Phase II findings, the SWRCB and the ACOE recommended that CA-NAP-406 and two other sites were eligible for the NRHP under 36 CFR§60.4(d). The SHPO reviewed the information supporting this conclusion and concurred on the determination of NRHP eligibility in December 2006.[30]

Impact to CA-NAP-406 from the Flood Protection Project included removal of a central portion of the site during levee construction, and the eastern portion of the site was covered with spoils resulting from the Project. The SWRCB and ACOE applied the criteria of effect found at 36 CFR 800.5(a)(1) and determined that the Flood Protection Project would result in adverse effects to the NRHP eligible historic property; the SHPO concurred with this determination. Because it was determined that the Flood Protection Project would result in adverse effects to CA-NAP-406 and the other sites, an MOA was signed between the SWRCB, ACOE, and the SHPO to develop ways to avoid, minimize, or mitigate the potential adverse effects to the sites. The City of St. Helena and the Mishewal-Wappo Tribe of the Alexander Valley were concurring parties to the MOA.

The SWRCB and ACOE elected to conduct Phase III data recovery archaeological treatment at CA-NAP-406 and the other sites to recover significant data from

[27] Ibid.

[28] Kevin M. Bartoy and John Holson, 2006. Revised Historic Properties Treatment Plan for Archaeological Sites CA-NAP-399, CA-NAP-406, CA-NAP-413, and CA-NAP-863, St. Helena Flood Protection Project, St. Helena, Napa County. On file Urban Planning Partners, Oakland, California.

[29] Bartoy et al., op. cit.

[30] Bartoy and Holston 2006, op. cit.

them prior to their disturbance or destruction by the Flood Protection Project. In 2006, Pacific Legacy, Inc. prepared a Historic Properties Treatment Plan (HPTP) to guide data recovery at the sites, including CA-NAP-406.[31]

Pacific Legacy, Inc. conducted Phase III data recovery at CA-NAP-406 between December 2007 and May 2009. Excavations focused on the central part of the site, within the footprint of the levee that now forms the western boundary of the Hunter Subdivision Project site.[32] As such, Pacific Legacy's data recovery operations fell outside the boundary of the current project site. The results of the previous testing indicated that the site extended further north than was tested, but how much further remains unknown. The original site boundary was based on surface indications, and subsurface testing has extended the site significantly to the northeast and southwest, but no testing has been undertaken to redefine the boundaries to the northwest and southeast. As a result, the boundaries of CA-NAP-406 in general are poorly defined, and in particular for the current project, the northern, southern, and eastern boundaries have not been accurately determined.

After completion of data recovery operations at CA-NAP-406, a levee was constructed through the central portion of the site as part of the Flood Protection Project. In addition, spoils from other elements of the Flood Protection Project, including archaeological materials from nearby sites, were re-deposited within the Hunter Parcel in the current Project area and now cover the eastern portion of CA-NAP-406.[33]

Native American Consultation Results. No responses to WSA's letters of November 17, 2011 were received. Follow-up telephone calls were placed on January 12, 2012. Ya-Ka-Ama had no comments on the project, while the Mishewal-Wappo Tribe of Alexander Valley recommended archaeological and Native American monitoring of any excavation or ground disturbing activities in previously undisturbed soils within the project area.

Paleontological Resources Assessment Results. Based on the boring logs from a preliminary geotechnical report for the project,[34] it appears the borings were set in Holocene clayey-silt materials to their total depths. Therefore, the Holocene deposits appear to be at least 10 feet deep in the project area. The

[31] Ibid.

[32] John Holson, Principal Investigator, Pacific Legacy, Inc. Electronic communication with William Self Associates, January 18, 2012.

[33] Ibid.

[34] Pacific Miller Engineering Group, 2009. Geotechnical Engineering Consultation, Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California. On file Urban Planning Partners, Oakland, California.

Society of Vertebrate Paleontologists Guidelines[35] indicates these Holocene deposits have a "low potential" to contain significant fossils. Because current construction plans for the project area do not include excavation below 10 feet deep, the project area is classified here as "low potential" to contain rock units from which vertebrate or significant invertebrate fossils have been recovered and is considered to have a low potential for containing significant non-renewable paleontological resources.

b. Regulatory Setting

The following describes the regulatory context for cultural and paleontological resources in St. Helena.

(1) California Environmental Quality Act

CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies. CEQA states that it is the policy of the State of California to "take all action necessary to provide the people of this state with… historic environmental qualities…and preserve for future generations examples of the major periods of California history." Under the provisions of CEQA, "A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment."

CEQA Section 15064.5(a) defines a "historical resource" as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register;
- Listed in a local register of historical resources (as defined at Public Resources Code Section 5020.1(k));
- Identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency (CCR Title 14(3) Section 15064.5(a)).

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource shall be considered by the lead agency to be

[35] Society of Vertebrate Paleontology, 1995. Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. Society of Vertebrate Paleontology News Bulletin 163.

'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources."[36]

CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process. If feasible, adverse effects to the significance of historical resources must be avoided, or the effects mitigated. The significance of an historical resource is impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register of Historical Resources. If there is a substantial adverse change in the significance of a historical resource, the preparation of an environmental impact report may be required.

If the cultural resource in question is an archaeological site, CEQA requires that the lead agency first determine if the site is a historical resource as defined in CEQA Guidelines Section 15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource. If the archaeological site does not qualify as a historical resource, but does qualify as a unique archaeological site, then the archaeological site is treated in accordance with Public Resources Code Section 21083.2. In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource. CEQA defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

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

If an impact to a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact. Mitigation must avoid or substantially lessen the physical impact that the project will have on the resource. Generally, the use of drawings, photographs, and/or displays does not mitigate the physical impact on the environment caused by demolition or destruction of a historical resource. However, CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to a less-than-significant level.

[36] CEQA Guidelines Section 15064.5(a)(3).

(2) California Register of Historical Resources

The California Register of Historical Resources (California Register) is an authoritative listing and guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify and evaluate California's historical resources, and indicates which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. Any resource listed in, or eligible for listing in, the California Register is to be taken into consideration during the CEQA process.

The California Register was modeled after the National Register, and its significance criteria and integrity requirements are consistent with those of the National Register. A resource eligible for the National Register is eligible for the California Register. The National Register criteria, however, have been modified for state use by the California Office of Historic Preservation to include a range of historical resources that better reflect the history of California. There are three instances in which a resource not eligible for the National Register may be eligible for the California Register: moved resources; resources achieving significance in the past 50 years; and reconstructed resources.

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource may be significant under one or more of the following criteria:

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

Age. In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource. The State of California Office of Historic Preservation recommends documenting, and taking into consideration in the planning process, any cultural resource that is 45 years or older.

Integrity. The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's

period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association".

Eligibility. Resources that are significant, meet the age guidelines, and possess integrity will generally be considered eligible for listing in the California Register.

(3) Health and Safety Code

Health and Safety Code Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

(4) Public Resources Code

Public Resources Code Section 5097.5 provides for the protection of cultural and paleontological resources. This section prohibits the removal, destruction, injury, or defacement of archaeological and paleontological features on any public lands under the jurisdiction of State or local authorities.

2. Impacts and Mitigation Measures

This section discusses potential impacts on cultural resources that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the potential cultural resource impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.E-3.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on cultural resources and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to cultural resources and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

TABLE IV.E-3 CULTURAL AND PALEONTOLOGICAL IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Cause a substantial adverse change in the significance of a historical resource as defined in Sec. 15064.5?	LTS with Mitigation (see Impact CULT-1 on page 160)
▪ Cause a substantial adverse change in the significance of an archaeological resource pursuant to Sec. 15064.5?	LTS with Mitigation (see Impact CULT-1 on page 160)
▪ Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	LTS (see page 159)
▪ Disturb any human remains, including those interred outside of formal cemeteries?	LTS with Mitigation (see Impact CULT-2 on page 163)

Source: Urban Planning Partners, 2012.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would have a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site; or
- Disturb any human remains, including those interred outside of formal cemeteries.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study determined that the project would have a potentially significant impact with regard to all of the significance criteria. As a result, discussion of all of the criteria is provided below.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011, to January 6, 2012 including at the Scoping Session public hearing on December 6, 2012. A scoping summary of comments received is included in Appendix A of this document.

No comments concerning cultural resources were received during the scoping period.

b. Less-than-Significant Cultural and Paleontological Resources Impacts

As discussed above under setting, the Holocene deposits appear to be at least 10 feet deep in the project site area. The Society of Vertebrate Paleontologists

Guidelines[37] indicates these Holocene deposits have a "low potential" to contain significant fossils. Because current construction plans for the project area do not include excavation below 10 feet deep, the project area is classified here as " low potential" to contain rock units from which vertebrate or significant invertebrate fossils have been recovered and is considered to have a low potential for containing significant non-renewable paleontological resources. Therefore, the project's impact on pathological resources would be less than significant.

c. Significant Cultural and Paleontological Resources Impacts

A discussion of the significant impacts of the proposed project is provided below.

(1) Cultural and Archaeological Resources

Since a significant cultural resource (CA-NAP-406) has been previously identified within the project area, a significant impact would occur if any ground-disturbing activities (including grading, bulldozing, excavation, drilling, etc.) disturb, damage, or destroy buried archaeological features and deposits that would adversely alter the determination of site significance. A significant impact would occur if any ground-clearing activities (e.g., grading, brush-hogging, mowing, etc.) exposed buried archaeological features and deposits to erosion, inadvertent damage, or vandalism, which would adversely alter the determination of site significance.

The presence of known significant prehistoric sites situated in and around the project area indicates the possibility that other buried prehistoric resources might be discovered within the project site. A potentially significant impact would occur if ground-clearing or ground-disturbing activities exposed to disturbance, damage, or destruction previously unknown buried resources, both historic and prehistoric in nature, which could be considered significant historic resources. Indicators of prehistoric site activity include charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, and pockets of dark, friable soils. Historic resources include glass, metal, ceramics, wood and similar debris.

<u>Impact CULT-1</u>: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could adversely impact previously discovered or undiscovered potentially significant cultural and archaeological resources. (S)

<u>Mitigation Measure CULT-1</u>: The portion of the project area immediately east and west of Starr Avenue has not been capped with fill. Archaeological and

[37] Society of Vertebrate Paleontology, 1995. Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources: Standard Guidelines. Society of Vertebrate Paleontology News Bulletin 163.

Native American monitoring shall be conducted for all ground-disturbing activities that will impact native soils within the portion of the Project area that did not have fill deposited on it during the Flood Protection Project. The monitoring effort shall be conducted in accordance with an approved Archaeological Monitoring Plan (AMP). In accordance with CEQA Guideline §15064.5 (f), should any previously unknown historic or prehistoric resources, including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, pockets of dark, friable soils, glass, metal, ceramics, wood or similar debris, be discovered during grading, trenching, or other on-site excavation(s), earthwork within 100 ft. of these materials shall be stopped until a professional archaeologist certified by the RPA has an opportunity to evaluate the significance of the find. If the resource appears to be potentially significant, then testing shall be conducted in accordance with an approved archaeological testing plan (ATP). If the testing determines that the resource is potentially eligible to the CRHR, then the archaeologist will suggest appropriate mitigation(s), as determined necessary to protect the resource, as detailed below.

In addition, site CA-NAP-406 shall be governed by the following measures:

(A) According to CEQA Section 15126.4, avoidance of historic sites is the preferred mitigation. Since CEQA provisions regarding the preservation of historic sites direct that adverse effects to historic sites shall be avoided, if feasible, site CA-NAP-406 and any other site that may be discovered shall be protected from damaging effects through avoidance.

(B) Avoidance can include, but is not limited to, the following options:

1. Planning construction to avoid the archaeological or historic sites. Current plans for the project area include construction on top of recently placed fill that covers the project area east of Starr Avenue, including construction on top of recently placed fill that covers CA-NAP-406. In this area, avoidance may be feasible. West of Starr Avenue, ground-disturbing activities will occur within native soils, making avoidance unfeasible.
2. Incorporation of sites within parks, green space, or other open space. Current plans for the project do not include parks, green space, or other open space, including in the vicinity of CA-NAP-406.
3. Capping the archaeological site with a layer of chemically stable soil before construction. Capping the archaeological site would normally include installation of a water permeable protective barrier that is covered with a 3-ft.-thick layer of chemically stable soil before constructing non-intrusive facilities on the site. Site CA-NAP-406 was recently covered with a layer of fill from the Flood Protection Project and current plans for the project do not include excavation below the

fill layer covering the site. Excavation for landscaping, irrigation or any other purpose shall be limited to the fill layer. If the soil layer or recently placed fill layer cannot accommodate all planned underground utilities, a thicker soil layer may be used to cover the site. In portions of the project that did not have fill deposited on them during the Flood Protection Project, current project plans call for a layer of fill to be deposited east of Starr Avenue. In this area, avoidance through capping the site may be feasible. West of Starr Avenue, current project plans call for lowering the current grade by 1 foot and capping is not feasible.

4. Deeding the site into a permanent conservation easement. Current plans for the project do not include deeding the site into a permanent conservation easement.

(C) If excavation below the recently placed fill layer is necessary within the site boundary of CA-NAP-406 during construction, or avoidance of any previously undiscovered site is not feasible, data recovery shall be conducted in accordance with an approved archaeological data recovery plan (ADRP) to mitigate adverse effects to the significance of the site – the area of data recovery being limited to the area of adverse effect. This would fulfill CEQA requirements that the mitigation measure must be "roughly proportional" to the impacts of the project. Data recovery shall be conducted by a professional archaeologist certified by the Registry of Professional Archaeologists (RPA) in compliance with CEQA Guideline Section §15064.5. Once the site has been properly tested, data recovered, or preserved to the satisfaction of the professional RPA-certified archaeologist in compliance with CEQA Guideline §15064.5, the site can be further developed.

(D) Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center. Previous investigators conducted data recovery at CA-NAP-406 within the area of impact from the Flood Protection Project, which included the levee that was constructed through the central portion of the site. Reporting on the data recovery is not yet complete and the report has not yet been deposited with the California Historical Resources Regional Information Center.

CA-NAP-1008 was one of eight archaeological sites identified and tested within the Flood Protection Project APE in 2005. Phase II evaluations were conducted at the site and concluded that it did not constitute a "historic

property" (eligible for inclusion on the NRHP) or a "historical resource" (eligible for inclusion on the CRHR) (Bartoy et al. 2005). Other than CA-NAP-406 and CA-NAP-1008, there are no other previously recorded resources in the project site area, and no other previous studies that apply.

Implementation of this mitigation measure would reduce this impact to a less-than-significant level. (LTS)

(2) Human Remains

Construction of the proposed project would require soil excavation and grading for building foundations and utilities. There is no evidence of human remains at the project area, nor is there an expectation that such remains will be encountered.

<u>Impact CULT-2</u>: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could disturb human remains, including those interred outside of formal cemeteries. (S)

Although not anticipated, human remains could be encountered and damaged or destroyed by project construction. Such an impact would be considered significant. Should such remains be encountered, implementation of the following mitigation measure would reduce this potential impact to a less-than-significant level.

<u>Mitigation Measure CULT-2</u>: If human remains are discovered during ground disturbing activities, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code states:

(A) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

(B) The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage

Commission within twenty-four hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of preconstruction worker training and intermittent construction monitoring by a qualified archaeologist will serve to achieve compliance with this requirement for protection of human remains. Worker training typically instructs workers as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.

Implementation of this mitigation measure will reduce this impact to a less-than-significant level. (LTS)

F. GEOLOGY, SOILS, AND SEISMICITY

This section describes the project's geologic environment based on a site reconnaissance, published and unpublished regional geologic reports and maps, and two site-specific preliminary geotechnical reports.[1,2] In addition, this section assesses potential impacts related to the project from fault rupture, strong ground shaking, liquefaction, lateral spreading, subsidence, collapse, settlement, slope failure, erosion, expansive soils, and septic tanks. Mitigation measures for the identified significant impacts are provided, as appropriate.

1. Setting

The project site is located within California's Coast Ranges Geomorphic Province, a geologically young and seismically active region. Northwest-southeast trending ranges of low mountains and intervening structural basins forming valleys dominate this region.[3]

a. Existing Conditions

(1) Topography

The irregularly shaped project site is located near the northern end of the relatively flat Napa Valley, approximately 500 feet west of the Napa River.[4] The Napa River flows southeast within the Napa Valley and joins the San Francisco Bay approximately 25 miles south of the project site. Elevations of the project site range from approximately 243 feet National Geodetic Vertical Datum of 1929 (NGVD) on the west side near Adams Street to approximately 212 feet NGVD near the southeastern corner of the project site.[5] Slopes generally are towards the south and east.

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[1] Miller Pacific Engineering Group, 2009. Geotechnical Engineering Consultation; Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California.

[2] Miller Pacific Engineering Group, 2011. Updated Geotechnical Engineering Report; Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California.

[3] California Geological Survey, 2002. *California Geomorphic Provinces, Note 36,* California Department of Conservation.

[4] US Geological Survey (USGS), 1987 revised 1993. *Saint Helena Quadrangle 7.5' Series (Topographic) Map,* US Department of the Interior (DOI), published by National Geographic Holdings, 2001, *TOPO! Seamless USGS Topographic Maps*.

[5] Riechers Spence Associates, 2011. Hunter Subdivision Existing Conditions [site plan], St. Helena, California.

(2) Geology

The project site is within the valley formed between the Mayacamas Mountains to the west and the Vaca Mountains to the east.[6] These ranges consist of Sonoma Volcanics (Pliocene rhyolite, dacite, tuff, and pyroclastic rocks) overlying Franciscan Complex mélange (sandstone, shale, chert, conglomerate, and greenstone). Most of the project site is underlain by unconsolidated Quaternary alluvial deposits. These deposits are alluvial fans and fluvial deposits incised in older alluvium, and consist of fine sand and silt with gravel. The deposits may have been incised by channels that later have filled with deposits of younger alluvium. Underlying these alluvial deposits is the Sonoma Volcanics.[7,8]

(3) Soils

Soil is generally defined as the unconsolidated mixture of mineral grains and organic material that mantles the land surface. Soils can develop on unconsolidated sediments and weathered bedrock. The characteristics of natural soil reflect the five major influences on their development: topography, climate, biological activity, parent (source) material, and time. The project area is mantled by soils that reflect the characteristics of the underlying materials on which the soil is developed, the influence of soil movement by the Napa River, and of anthropogenic (man-made) soil movements.

Similar soils are grouped into units with similar soil properties and qualities. Soils of four units are found in the project area. The majority of the project site is Bale clay loam on 0 to 2 percent slopes and Bale clay loam on 2 to 5 percent slopes. Soil in the central eastern portion of the project is Cole silt loam, and a small portion of the project near Adams Street is Cortina very gravelly loam.

(4) Seismic Conditions

The project site is located in the seismically active San Francisco Bay Area. The main feature generating the seismic activity in the region is the tectonic plate boundary between the North American and Pacific plates. Locally, this boundary is referred to as the San Andreas Fault Zone (SAFZ), which includes the San Andreas Fault and numerous other active faults.

The SAFZ includes numerous faults found by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zoning Act to be “active” (i.e., to have evidence of fault rupture in the past 11,000 years). Some of the major active faults within the SAFZ include the San Andreas, Hayward, Rodgers Creek, Calaveras, San Gregorio-Seal Cove, Maacama, West Napa, Green Valley, Concord,

[6] City of St. Helena, 2010a. *Draft General Plan Update EIR*. Website accessed November 29, 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000219.

[7] California Division of Mines and Geology, 1982. *Geologic Map of the Santa Rosa Quadrangle, California*, Regional Geologic Map Series, Map No. 2A, Scale 1:250,000.

[8] U.S. Geological Survey, 1973. Preliminary Geologic Map of Eastern Sonoma County and Western Napa County, California, Map MF-483, Scale 1:62,500.

Greenville, and Calaveras faults. Active faults that meet the additional criteria of "sufficiently active and well-defined" have been included in an Alquist-Priolo Earthquake Fault Zone (A-PEFZ). Earthquake fault zone boundaries are typically positioned between 200 and 500 feet from active fault traces to accommodate imprecise locations of faults and possible existence of active branches. Development within an A-PEFZ is regulated, and geologic investigations are required to demonstrate that sites are not threatened by surface displacement from future faulting before development is permitted.[9]

The closest active fault to the project site is the Rodgers Creek Fault, located about 15 miles to the southwest. A segment of the West Napa Fault, that shows evidence of displacement in Quaternary time (between 11,700 and 1.6 million years ago), is located less than 2 miles southwest of the project; however, the closest active portion of this fault is located approximately 21 miles south of the project. A Quaternary segment of the Green Valley Fault is located approximately 4 miles east of the project and the closest active portion of this fault is located approximately 17 miles southeast.[10] Local faults and recent activity are shown on Figure IV.F-1.

In a fact sheet published in 2008, the U.S. Geological Survey (USGS) estimated that there was a 21 percent probability that between 2008 and 2037, a 6.7 or greater magnitude earthquake will occur along the Northern San Andreas Fault. The probability of a 6.7 magnitude or greater earthquake occurring along other local active faults was estimated to be 59 percent on the Southern San Andreas Fault, 31 percent along the Hayward-Rodgers Creek Fault, and 7 percent along the Calaveras Fault.[11]

(5) Seismic and Geologic Hazards

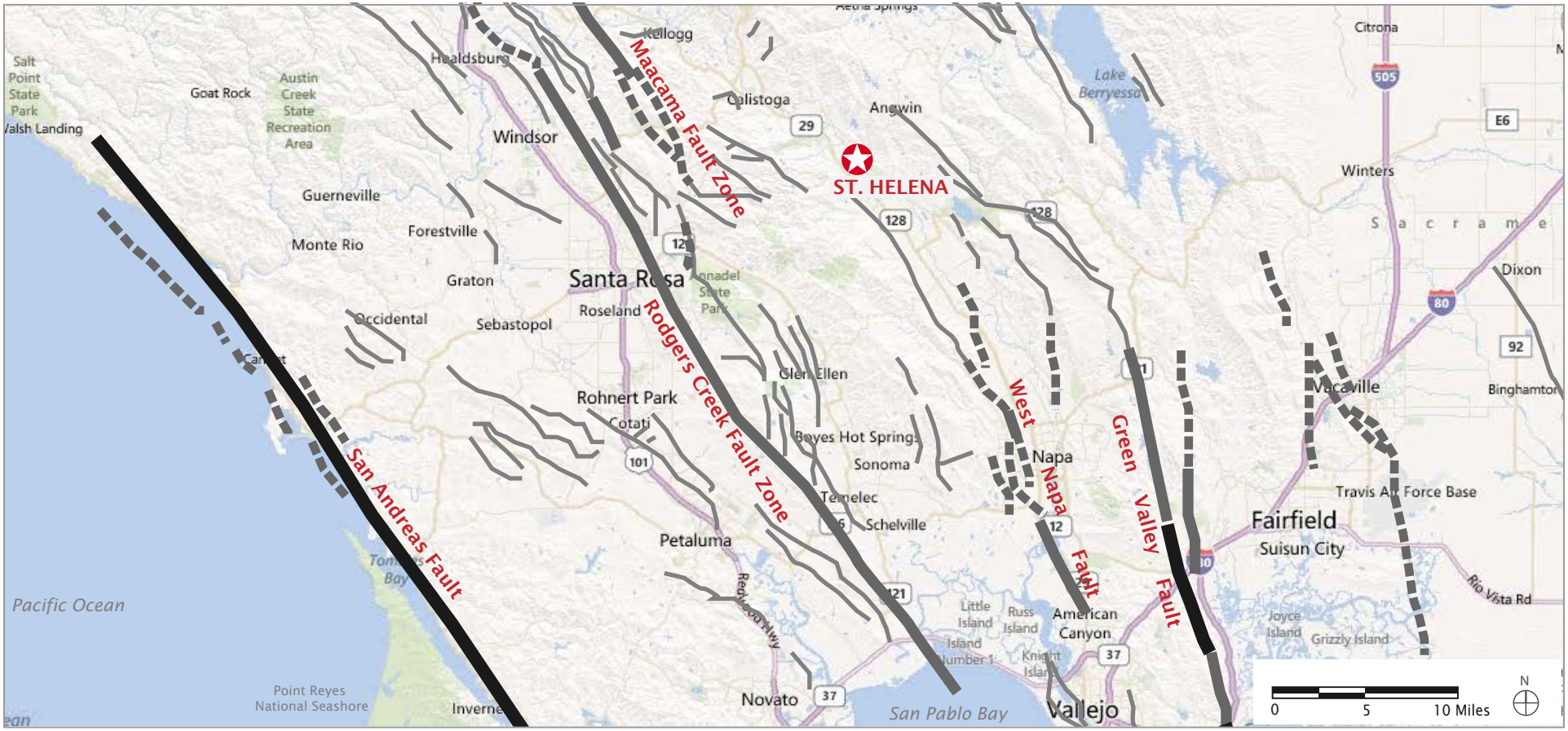
Seismic and geologic hazards include surface rupture, ground shaking, liquefaction, lateral spreading, landslides, settlement and collapse, expansive and corrosive soils, and subsidence. Each of these hazards is discussed below.

Surface Rupture. Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active major fault trace. No active faults have been mapped at the project site, and no portion of the site is located within

[9] California Geological Survey, Interim Revision 2007. *Fault-Rupture Hazards Zones in California, Special Publication 42,* California Department of Conservation.

[10] California Department of Conservation, California Geological Survey, 2010. *Geologic Data Map No. 6, 2010 Fault Activity Map of California*. Website accessed November 28, 2011 at http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html.

[11] U.S. Geological Survey, 2008. *Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years*, USGS Fact Sheet 2008-3027. Website accessed November 28, 2011 at http://pubs.usgs.gov/fs/2008/3027/.



Fault Classification Code (Indicating Recency of Movement)

- Fault along which historic (last 200 years) displacement has occured
- Holocene Fault displacement (during past 11,700 years) without historic record
- Late Quaternary fault discplacement (during past 700,000 years)
- Quaternary Fault (age undifferentiated)
- Pre-Quaternary Fault (older than 1.6 million years) or fault without recognized Quaternary displacement

Source: California Department of Conservation, California Geological Survey, 2010, Geologic Data Map No. 6, 2010 Fault Activity Map of California.
Website accessed at *http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html*
Base map: Bing Maps, 2011

Figure IV.F-1
Hunter Subdivision Project EIR
Fault Activity Map

an A-PEFZ[12] or within a fault zone mapped by the City of St. Helena.[13,14,15] Therefore, the potential for fault rupture at the site is considered negligible.

Ground Shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake.

Magnitude is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves.[16]

Intensity is a subjective measure of the perceptible effects of seismic energy at a given point and varies with distance from the epicenter and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table IV.F-1). Intensity can also be quantitatively measured using accelerometers (strong motion seismographs) that record ground acceleration at a specific location. Ground acceleration is a measure of force applied to a structure under seismic shaking. Acceleration is measured as a fraction or percentage of the acceleration under gravity (g).

A 7.0 (MW) magnitude event on the nearby active Rodgers Creek fault or a 7.1 (MW) event on the combined Rodgers Creek/Hayward Fault could be capable of generating strong seismic shaking (MMI VII) in the project area. The San Andreas

[12] California Department of Conservation, California Geological Survey, *Alquist-Priolo Earthquake Fault Zone Maps*. Website accessed November 29, 2011 at http://www.quake.ca.gov/gmaps/ap/ap_maps.htm.

[13] City of St. Helena, 2010a. *Draft General Plan Update EIR*. Website accessed November 29, 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000219.

[14] City of St. Helena, 2010b. *Final Draft General Plan Update [2030] Document*. Website accessed November 29, 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000223.

[15] City of St. Helena, 2010c. *Final St. Helena General Plan Update, Program EIR, Comments and Responses*. Website accessed November 29, 2010 at http://www.sthelena2030.com/docManager/1000000326/St%20Helena%20GPU%20Final%20PEIR.pdf.

[16] In the past, the common standard for measurement of magnitude (M_L) by geologists and earthquake seismologists was the Richter Scale. However, due to limitations of the instrumentation used to measure Richter magnitude, moment magnitude (M_w) is now most commonly used to characterize seismic events. Moment magnitude is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance of the rock type along the fault to rupture. The moment magnitude can be calculated following an earthquake or estimated for an expected earthquake if the fault rupture area and displacement and rock properties can be estimated accurately. Therefore, the magnitudes of expected earthquakes in the San Francisco Bay Area are reported as moment magnitudes.

TABLE IV.F-1 MODIFIED MERCALLI SCALE[A]

Intensity		Effects	v,b cm/s	gc
M[d]	I.	Not felt. Marginal and long-period effects of large earthquakes.		
3	II.	Felt by persons at rest, on upper floors, or favorably placed.		
	III.	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.		0.0035-0.007
4	IV.	Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frame creak.		0.007-0.015
	V.	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.	1-3	0.015-0.035
5	VI.	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle - CFR).	3-7	0.035-0.07
6	VII.	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments – CFR). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.	7-20	0.07-0.15
	VIII.	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.	20-60	0.15-0.35

TABLE IV.F-1 MODIFIED MERCALLI SCALE (*CONTINUED*)

Intensity		Effects	v,b cm/s	gc
7	IX.	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations – CFR.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake foundations, sand craters.	60-200	0.35-0.7
8	X.	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.	200-500	0.7-1.2
	XI.	Rails bent greatly. Underground pipelines completely out of service.		>1.2
	XII.	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.		

Notes: *Masonry A, B, C, D.* To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering (which has no connection with the conventional Class A, B, C construction).

- *Masonry A:* Good workmanship, mortar, and design, reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.
- *Masonry B:* Good workmanship and mortar, reinforced, but not designed to resist lateral forces.
- *Masonry C:* Ordinary workmanship and mortar; no extreme weaknesses such as non-tied-in corners, but masonry is neither reinforced nor designed against horizontal forces.
- *Masonry D:* Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

[a] From Richter (1958).

[b] Average peak ground velocity, centimeters per second (cm/s).

[c] Average peak acceleration (away from source).

[d] Richter magnitude correlation.

Source: Richter, 1958.

Fault is considered capable of generating a magnitude 7.9 (MW) earthquake (similar to the 1906 San Francisco quake) that could also generate moderate to strong seismic shaking (MMI VI to VII) at the project site. To the north, the Maacama fault could produce a 6.6 (MW) event that could result in strong (MMI VII) shaking at the project site.[17]

[17] Association of Bay Area Governments (ABAG), 2004. *Earthquake Shaking Scenario Maps.* Website accessed November 29, 2011 at: http://www.abag.ca.gov/cgi-bin/pickmapx.pl.

Estimates of the peak ground acceleration have been made for the project vicinity based on probabilistic models that account for multiple seismic sources. The expected peak horizontal acceleration (with a 10 percent chance of being exceeded in the next 50 years) generated by any of the seismic sources potentially affecting the project vicinity, including the project site, is estimated by the California Geological Survey as approximately 0.3 to 0.5g.[18] Shaking amplification for geologic materials underlying the project site area has been estimated to be moderately high.[19] This level of ground shaking at the project site is a potentially significant hazard.

Liquefaction and Lateral Spreading. Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. The City of St. Helena General Plan Figure 9.4 indicates that the project site has a moderate to very high potential for liquefaction, with increasing potential for liquefaction closer to the Napa River.[20] This liquefaction risk at the project site is a potentially significant hazard. Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of unconsolidated material or more commonly by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement.[21] Earthquake shaking leading to liquefaction of saturated soil can result in lateral spreading where the soil undergoes a temporary loss of strength. Although the project site is relatively flat, surface elevations adjacent to the project on the Napa River side of the dike to the east are lower than project site elevations. The project site is highly susceptible to liquefaction hazards in this area, indicating that lateral movement to an open face is possible; therefore, the risk of lateral spreading is considered to be potentially significant hazard.

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[18] California Geological Survey, 2007. *Probabilistic Seismic Hazards, Peak Ground Acceleration*. Website accessed November 29, 2011 at: http://www.conservation.ca.gov/cgs/rghm/psha/Pages/pga.aspx.

[19] ABAG, 2003. *Earthquake and Hazards Program, Soil/Rock Shaking Amplification Maps*. Website accessed November 29, 2011 at: http://quake.abag.ca.gov/shaking/amplification/.

[20] City of St. Helena, 2010b. *Final Draft General Plan Update [2030] Document*. Website accessed 29 November 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000223.

[21] Rauch, Alan F., 1997. EPOLLS: An Empirical Method for Predicting Surface Displacements due to Liquefaction-Induced Lateral Spreading in Earthquakes, Ph. D. Dissertation, Virginia Tech, Blacksburg, VA.

Landslides. Slope failure can occur as either rapid movement of large masses of soil ("landslide") or slow, continuous movement ("creep"). The primary factors influencing the stability of a slope are: 1) the nature of the underlying soil or bedrock; 2) the geometry of the slope (height and steepness); 3) rainfall; and 4) the presence of previous landslide deposits. The project site is mapped as Category 1, (stable areas of less than 5 percent slope and not underlain by landslide deposits).[22] There are no Seismic Hazard Zones for landslides on the project site, indicating a geotechnical investigation addressing potential landslide hazards would not be required by the State of California.[23] Therefore, the risk of landslides at the project site is considered to be negligible.

Settlement and Collapse. Settlement, differential settlement, or collapse could occur if buildings or other improvements were built on low-strength foundation materials (including imported fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Collapse can occur rapidly in saturated, loose fill. Portions of the project site that contain loose or non-engineered fill may be susceptible to differential settlement or collapse.

A preliminary geotechnical investigation was conducted on the project site in 2009. Ten borings were drilled to depths of between 3 and 9 feet below ground surface (bgs) at that time. Soils encountered in the upper 3 feet bgs included soft to medium stiff clayey silt with a high moisture content. Dense clayey silt with a lower moisture content was encountered below a depth of 3 feet bgs. A former pond, approximately 130 feet in diameter, was reportedly located near the southeastern portion of the parcel and had been filled in by 2009. The pond had been backfilled with uncompacted fill to a depth of approximately 6.5 feet bgs. These unconsolidated fills and soils with high moisture content were deemed unsuitable for supporting future development. Recommendations included over excavation of the entire project site to a depth of 2.5 feet and the pond area to 6 feet bgs, with moisture-conditioning and recompaction in lifts to a specified degree of compaction.[24]

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[22] Nilsen, T.H., Wright, R.H., et. al., 1979. Relative Slope Stability and Land-use Planning in the San Francisco Bay Region, California. USGS Professional Paper 944.

[23] California Department of Conservation, California Geological Survey, 2002. Seismic Hazards Zonation Program. Website accessed November 30, 2011 at: ttp://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx.

[24] Miller Pacific Engineering Group, 2009. Geotechnical Engineering Consultation; Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California.

In the summer of 2010, engineered fill was placed on the project site as part of the City of St. Helena Flood Protection Project, with an average depth of approximately 2 feet. An updated geotechnical report prepared after the placement of this fill reported that the over excavation and recompaction recommended in 2009 had not occurred, and surface preparation before fill placement was limited to 6 to 8 inches bgs. The 3-foot layer of soft, weak natural soil remains below the recent (2010) fill. Over-excavation, moisture-conditioning, and recompaction of the recent fill and the underlying weak soils were recommended to avoid future settlement after development.[25] This settlement risk at the project site is a potentially significant hazard.

Expansive and Corrosive Soils. Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to building and infrastructure may occur if the potentially expansive soils were not considered in building design and during construction. Corrosivity is a function of the chemical composition of the soils, and the materials from which it is derived. If not addressed by design measures and proper selection of building materials, corrosive soils could cause substantial damage to building foundations, pavements, utilities, and/or other improvements.

The majority of the project site is Bale clay loam, which has a plasticity index of 10 to 25 percent and would have a low to medium degree of expansion. Soil in the central eastern portion of the project is Cole silt loam, which has a plasticity index of 5 to 20 percent and would have a low degree of expansion.[26] The Bale and Cole soils generally have a high corrosion potential to steel, and low to moderate corrosion potential for concrete. The Cortina gravelly loam soils, located in a small portion of the project near Adams Street, have a moderate corrosion potential to steel and low corrosion potential for concrete.[27]

Subsidence. Subsidence is the lowering of the land-surface elevation. The mechanism for subsidence is generally related to groundwater pumping and

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[25] Miller Pacific Engineering Group, 2011. Updated Geotechnical Engineering Report; Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California.

[26] Nelson, John D, and Miller, Debora J., 1992. Expansive Soils: Problems and Practice in Foundation and Pavement Engineering, p. 51, accessed December 30, 2011 at: http://books.google.com/books?id=QiDGiFIlf30C&pg=PA48&lpg=PA48&dq=linear+extensibility+and+expansive+soils&source=bl&ots=cCFveINDZ8&sig=Wr5XgHB3bKfSVPvg-KHIqvRxkfo&hl=en&sa=X&ei=A2b7Tu6HJceoiAKPobXKDg&ved=0CDkQ6AEwAw#v=onepage&q=linear%20extensibility%20and%20expansive%20soils&f=false.

[27] Natural Resources Conservation Service (NRCS), 2007. *Web Soil Survey*, USDA Mapping Website, accessed November 30, 2011 at: websoilsurvey.nrcs.usda.gov.

subsequent consolidation of loose aquifer sediments. The primary hazards associated with subsidence are increased flooding hazards and damage to underground utilities. Other effects of subsidence include changes in the gradients of stormwater and sanitary sewer drainage systems in which the flow is gravity-driven. Regional groundwater levels are reportedly stable[28] and no documented problems associated with subsidence locally have been identified.

b. Federal Regulations

Relevant federal regulations relevant to geology, soils, and seismology are discussed below.

(1) Federal Regulations – National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law (PL) 95-124. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

c. State Regulations

Relevant State codes and regulations relevant to geology, soils, and seismology are discussed below.

(1) California Building Code

The 2010 California Building Code (CBC), which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2009 International Building Code. The 2010 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. The City of St. Helena's Building Department has adopted the 2010

[28] Luhdorff & Scalmanini, 2011. Napa County Groundwater Conditions and Groundwater Monitoring Program, February. Website accessed January 4, 2012 at http://www.countyofnapa.org/planning/groundwater/.

CBC and is responsible for reviewing plans, issuing building permits, and conducting field inspections.

The CBC requires that a site-specific geotechnical investigation report be prepared by a licensed professional for proposed developments of one or more buildings greater than 4,000 square feet to evaluate geologic and seismic hazards. Buildings less than or equal to 4,000 square feet also are required to prepare a geologic engineering report, except for one-story, wood-frame and light-steel-frame buildings of Type V construction that are located outside of the Alquist-Priolo Earthquake Faults Zones.

The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. Requirements for the geotechnical investigation are presented in Chapter 16 "Structural Design" and Chapter 18 "Soils and Foundation" of the 2010 CBC. The geotechnical investigation report would be reviewed by the City of St. Helena's Building Department prior to issuance of building permits to ensure compliance.

(2) Alquist-Priolo Earthquake Fault Zoning Act (A-PEFZA)

Surface rupture is the most easily avoided seismic hazard. The A-PEFZA was passed by the California Legislature in December 1972 to mitigate the hazard of surface faulting to structures for human occupancy, by delineating an area around active faults where specific geotechnical investigations must be conducted to assess the possible presence of an active fault trace. The project site is not located within an A-PEFZA.

(3) Seismic Hazards Mapping Act

In 1990, following the 1989 Loma Prieta earthquake, the California Legislature enacted the Seismic Hazards Mapping Act (SHMA) to protect the public from the effects of strong ground shaking, liquefaction, landslides and other seismic hazards. The SHMA established a state-wide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and counties in protecting public health and safety. The SHMA requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the California Geologic Survey is mapping SHMA Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides: primarily the San Francisco Bay area and Los Angeles basin. The project site and vicinity have not been mapped in conformance with the SHMA.[29]

[29] California Department of Conservation, California Geological Survey, 2002. Seismic Hazards Zonation Program. Website accessed November 30, 2011 at: ttp://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx.

d. Local Regulations

Local regulations relevant to geology, soils, and seismology are discussed below.

(1) Existing 1993 General Plan

The following goals, objectives, and policies from the 1993 St. Helena General Plan, Public Health and Safety element[30] are relevant to geology, soils, and seismicity issues in the project area:

PUBLIC HEALTH AND SAFETY
Geology, Soils, and Seismicity
IMPLEMENTING POLICY 8.4.3 Prohibit any development – including any land alteration, grading for roads, and structural development – in areas of slope instability or other geologic concerns until mitigating measures are taken to limit potential damage to levels of acceptable risk.

(2) Draft General Plan Update

The following policies from the St. Helena Draft General Plan Update, Public Health, Safety, and Noise Element[31] are relevant to geology, soils, and seismicity issues in the project area:

PUBLIC HEALTH AND SAFETY
Geology, Soils, and Seismicity
GOAL 9.4 Maintain high levels of health and safety.
POLICY P23.1 Minimize the risk of injury, loss of life and property damage from seismically-induced and other known geologic hazards.
IMPLEMENTING ACTION PS3.A Require a soils and geologic report to be submitted for new construction prior to the issuance of grading and building permits and the submission of final maps.
IMPLEMENTING ACTION PS3.B Prohibit any development—including any land alteration, grading for roads and structural development—in areas of slope instability or other geologic concerns until mitigating measures are taken to limit potential damage to levels of acceptable risk.

2. Impacts and Mitigation Measures

This section analyzes the impacts related to geology, soils, and seismicity that could result from implementation of the proposed project. The section begins with criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation

[30] City of St. Helena, 1993. *1993 General Plan*. Website accessed December 1, 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000092.

[31] City of St. Helena, 2010b. *Final Draft General Plan Update [2030] Document*, October. Website accessed 29 November 2011 at http://www.sthelena2030.com/docs.php?ogid=1000000223.

measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.F-2.

TABLE IV.F-2 GEOLOGY, SOILS, AND SEISMICITY IMPACTS SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	
– Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	LTS (see page 180)
– Strong seismic ground shaking?	LTS with Mitigation (see Impact GEO-1 on page 181)
– Seismic-related ground failure, including liquefaction?	LTS with Mitigation (see Impact GEO-1 on page 181)
– Landslides?	Focused out in Initial Study (see page 179)
▪ Result in substantial soil erosion or the loss of topsoil?	LTS (see page 180)
▪ Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	LTS with Mitigation (see Impact GEO-1 on page 180)
▪ Be located on expansive soil, as defined in Table 1802.3.2 of the California Building Code (2007, as it may be revised), creating substantial risks to life or property?	LTS with Mitigation (see Impact GEO-2 on page 182)
▪ Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	Focused out in Initial Study (see page 179)

Source: Urban Planning Partners, 2012.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact related to geology, soils, and seismicity and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to geological resources and a summary of comments submitted during the scoping period that are relevant to the scope of this analysis is also provided.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant geologic, soils or seismic impact if it would:

- Expose people or structures to substantial risk of loss, injury, or death involving:

  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazard Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or
  - Landslides.
- Result in substantial soil erosion or loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined in Table 1802.3.2 of the California Building Code (2007, as it may be revised), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011. The Initial Study determined that the project would have no impact with regard to the following criteria:

- Expose people or structures to substantial risk of loss, injury, or death involving:
  - Landslides.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

These criteria are discussed briefly below under less-than-significant impacts.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

There were no comments concerning geologic, soils or seismic impacts.

b. Less-than-Significant Geology, Soils, and Seismicity Impacts

The following impacts of the proposed project have been found to be less than significant.

(1) Fault Rupture

Fault rupture is not expected to occur within the boundaries of the project site. Based on both the A-PEFZA studies and City of St. Helena mapping, there are no known active faults traversing the project site. This is therefore a less-than-significant impact.

(2) Slope Stability

Implementation of the proposed project would not be affected by slope instability as the site is not adjacent to steep slopes and is relatively flat. The project site is mapped as Category 1, (stable areas of less than 5 percent slope and not underlain by landslide deposits).[32] There are no Seismic Hazard Zones for landslides on the project site, indicating a geotechnical investigation addressing potential landslide hazards would not be required by the State of California.[33] Therefore, the risk of landslides at the project area is considered to be less than significant.

(3) Subsidence

The project proposes using City of St. Helena water supply, and extracting groundwater from the existing on-site well only for landscape irrigation. Future water demand from the onsite well for landscaping is expected to be much less than the historic agricultural demand by irrigation of vineyards. There are no significant agricultural or industrial activities proposed that would result in the substantial pumping withdrawal of water from the underlying aquifer that could contribute to future subsidence on the project site. Therefore, the potential for the project to result in subsidence is less than significant.

(4) Erosion

Potential impacts associated with erosion are discussed in the Hydrology and Water Quality section of this EIR and have been determined to be less than significant.

c. Significant Geology, Soils, and Seismicity Impacts

Two significant impacts that would require mitigation have been identified and are described below.

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[32] Nilsen, T.H., Wright, R.H., et. al., 1979. Relative Slope Stability and Land-use Planning in the San Francisco Bay Region, California. USGS Professional Paper 944.

[33] California Department of Conservation, California Geological Survey, 2002. Seismic Hazards Zonation Program. Website accessed November 30, 2011 at: ttp://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx.

Impact GEO-1: Occupants of the development proposed under the project could be subject to seismic hazards. (S)

All structures in the Bay Area could potentially be affected by ground shaking in the event of an earthquake. The amount of ground shaking depends on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials between the receptor and the epicenter. Moderate to strong ground shaking is expected at the project site during predicted earthquakes on the Rodgers Creek, Maacama, and other regional active faults. This level of seismic shaking could cause extensive non-structural damage in buildings at the site. In addition, limited structural damage may occur.

Mitigation Measure GEO-1: Prior to the issuance of any site-specific grading or building permits, a design-level geotechnical report shall be prepared and submitted to the City of St. Helena Building Department for review and approval in accordance with adopted City standards. The structural designs shall adhere to the 2010 CBC. Examples of the kinds of measures typical to meet these requirements include pile-supported foundations, use of pre-stressed concrete materials, slab reinforcement, compaction specifications, drainage requirements, use of control joints, and appropriate safety factors. The report shall identify specific building techniques appropriate for minimizing damage from seismic events, including liquefaction and lateral spreading. In addition, the following requirement for the geotechnical and soils report shall be met:

- Analysis presented in the geotechnical report shall conform to the California Division of Mines and Geology recommendations presented in the Guidelines for Evaluating Seismic Hazards in California.[34]
- Design review for the project shall include evaluation of fixtures, furnishings, and fasteners with the intent of minimizing collateral injuries to building occupants from falling fixtures or furnishings during the course of a violent seismic event.
- All design criteria and specifications set forth in the design-level geotechnical report shall be implemented as a condition of project approval. This report shall address the final specifications for design and construction intended to limit the effects of seismic hazards to structures and utilities, including but not limited to: foundation design, driven piles, utility corridor design, excavation subgrade preparation, fill materials and compaction specifications, retaining walls and concrete pavement specifications, and drainage and dewatering design. This report shall be

[34] California Division of Mines and Geology (CDMG), 1997, *Guidelines for Evaluating Seismic Hazards in California*, CDMG Special Publication 117, 74 pp.

completed as a condition of approval of the vesting tentative map or adoption of the development agreement.

Implementation of the above mitigation measures would reduce the potential hazards associated with seismic activity to a less-than-significant level. (LTS)

Impact GEO-2: Damage to structures or property could result from unstable, expansive, or corrosive soils. (S)

Construction on un-compacted and loose fill, if present, would be subject to varying rates of settlement and potential collapse. If the settlement is not uniform, or if collapse occurs, structural damage may result. Buried utilities may also experience differential settlement along their alignments. A preliminary geotechnical report[35] indicated that engineered fill was placed on top of a 3-foot layer of soft, weak natural soil with high moisture content across the project site, and above uncompacted fill in a former pond area. These unconsolidated fills and soils with high moisture content were deemed unsuitable for supporting future development. Over-excavation, moisture-conditioning, and recompaction of the recent fill and the underlying weak soils was recommended to avoid future settlement after development.[36] In addition, on-site soils are potentially corrosive and expansive. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level. (LTS)

Mitigation Measure GEO-2: The design-level geotechnical report shall include recommendations for foundations and improvements, including sidewalks, parking lots, and subsurface utilities, that take into consideration the potential effects of settlement, collapse, and expansive or corrosive soils. The report shall be submitted to the City of St. Helena Building Department for review and approval. All design criteria and specifications set forth in the design-level geotechnical report shall be implemented as a condition of project approval. (LTS)

[35] Miller Pacific Engineering Group, 2001, Updated Geotechnical Engineering Report; Evaluation of Shallow Soil Conditions and Recommendations for Subgrade Preparation and Grading Specifications, Future Residential Development, Lands of Hunter, Adams Street, St. Helena, California.

[36] Miller Pacific Engineering Group, 2011, op. cit.

G. GREENHOUSE GAS EMISSIONS

This section describes the expected emissions of greenhouse gases (GHGs) generated during the construction and operational phases of the proposed Hunter Subdivision Project (project) and has been prepared in accordance with the most recent version of the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines.[1]

1. Setting

The following discussion provides a summary of GHGs as they apply to climate change issues in the St. Helena area. Ambient standards and the regulation framework relating to GHGs are described.

a. Climate Change and GHG Emissions

GHGs are gases that trap heat in the atmosphere and are believed to be contributing to the cumulative change in the earth's climate. GHGs include carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) among others. Other GHGs, with much greater heat-absorption potential than CO2, include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride and are generated in certain industrial processes. However, accurate data for usage and storage of these compounds is difficult to obtain and the associated emissions likely represent less than 5 percent of total Napa County emissions.[2]

The International Panel on Climate Change (IPCC) reports[3] that the earth's linear warming trend over the last 50 years is nearly twice that for the last 100 years. Global atmospheric concentrations of CO2, CH4, and N2O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. The global increases in CO2 concentration are due primarily to fossil fuel use and land use change, while those of CH4 and N2O are primarily due to agriculture. The global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004. Annual emissions of CO2 grew by about 80 percent between 1970 and 2004. Atmospheric concentrations of CO2 and CH4 in 2005 exceed by far the natural range over the last 650,000 years.

IPCC states there is very high confidence that the net effect of human activities since 1750 has been one of warming. Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the

[1] Bay Area Air Quality Management District, 2011. *BAAQMD CEQA Air Quality Guidelines*.

[2] ICF International, 2011. *Napa County Climate Action Plan,* Revised October 31.

[3] International Panel on Climate Change, 2007. IPCC Fourth Assessment Report; http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml.

observed increase in anthropogenic GHG concentrations. It is likely that there has been significant anthropogenic warming over the past 50 years averaged over each continent, except Antarctica.[4]

Since the various GHGs have different heat-absorption potential and atmospheric half-lives, emissions from various GHGs are combined and reported in metric tons of "carbon dioxide equivalents" (CO2e), using CO2 is as a "reference gas" and factoring in other GHGs' individual global warming potential.

b. Existing and Projected GHG Emissions

In California, California Air Resources Board (CARB) estimates that transportation is the source of 36 percent of California's GHG emissions, followed by electricity generation at 22 percent and industrial sources at 21 percent.[5]

A study of the of GHG baseline emission inventories for all six Napa County jurisdictions has estimated that St. Helena generated approximately 46,052 metric tons of CO2e emissions, as compared to the County's overall emissions of 1,200,281 metric tons CO2e emissions.[6] A summary of Napa County and St. Helena's GHG emission by sector is provided in Table IV.G-1 below.

The largest generators of GHG emissions are the residential, commercial, and industrial sectors and on-road vehicles. GHG emissions from on-road vehicles in St. Helena are estimated to contribute approximately 18 percent, much lower than the 53 percent on-road vehicles contribute to countywide GHG emissions.

c. Effects of GHG Emissions

Some of the potential effects of increased GHG emissions and the associated global warming may include loss in snow pack (affecting water supply), sea level rise, more frequent extreme heat days per year, more large forest fires, and more drought years. Globally, climate change has the potential to result in higher maximum temperatures, higher minimum temperatures, and more intense precipitation events. Secondary effects that are projected to result from global warming include impacts on sea level rise, agriculture, changes in disease vectors, and changes in habitat and biodiversity.

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[4] ICF International, 2011. *Napa County Climate Action Plan,* Revised October 31.

[5] California Air Resources Board (CARB), 2009. California Greenhouse Gas Inventory for 2000-2006: http://www.arb.ca.gov/cc/inventory/inventory.htm.

[6] Napa County Transportation and Planning Agency. 2010. *Napa Countywide Community Climate Action Plan Framework*.

TABLE IV.G-1 CITY OF ST. HELENA AND NAPA COUNTY 2005 GREENHOUSE GAS EMISSIONS

	City of St. Helena		Napa County	
Sector	CO2e Emissions (Metric Tons)	Percent of Total	CO2e Emissions (Metric Tons)	Percent of Total
Residential	10,781	23%	196,350	16%
Commercial/Industrial	17,458	38%	226,661	19%
On-Road Vehicles (Transportation)	8,452	18%	636,724	53%
Off-Road Garden (Lawn and Garden Equipment)	178	0.4%	3,616	0.3%
Off-Road Industrial/ Commercial (Construction and Industrial/ Commercial Equipment)	4,061	9%	49,675	4%
Agricultural/Farming	769	2%	33,046	3%
Solid Waste	4,353	9%	54,209	5%
Total	**46,052**		**1,200,281**	

Source: Napa County Transportation and Planning Agency, 2010. *Napa Countywide Community Climate Action Plan Framework*.

d. Regulatory Setting

Federal, State and local policies and regulations relevant to GHGs are described below.

(1) Federal Regulations

The U.S. Supreme Court ruled on April 2, 2007 that CO2 is an air pollutant as defined under the Clean Air Act, and that the U.S. Environmental Protection Agency (U.S. EPA) has the authority to regulate emissions of GHGs. The U.S. EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs[7] CO2, CH4, N2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

[7] The well-mixed GHGs have lifetimes long enough to be relatively homogeneously mixed in the troposphere.

These findings do not themselves impose any requirements on industry or other entities. However, these findings were a prerequisite for implementing GHG emissions standards for vehicles. In collaboration with the National Highway Traffic Safety Administration, the U.S. EPA finalized emission standards for light-duty vehicles (2012-2016 model years) in May of 2010 and heavy-duty vehicles (2014-2018 model years) in August of 2011.

There are no federal regulations or policies regarding GHG emissions applicable to the proposed project.

(2) State Regulations

California has adopted the following regulations aimed at reducing statewide GHG emissions:

Assembly Bill 32. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, requires California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directs the CARB to develop and implement regulations that reduce statewide GHG emissions, institute a schedule to meet the emissions target, and develop tracking, reporting, and enforcement tools to ensure that California achieves the required emission reductions.

Climate Change Scoping Plan. The Climate Change Scoping Plan was approved by CARB in December 2008 and outlines the State's plan to achieve the GHG reductions required in AB 32. The Scoping Plan contains the primary strategies California will implement to achieve a reduction of 169 million metric tons of CO2e, or approximately 28 percent from the State's projected 2020 emission levels.

Key elements of the Scoping Plan include the following recommendations:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Executive Order S-3-05. Executive Order S-3-05 states that California is vulnerable to the effects of climate change, including reduced snowpack in the Sierra Nevada Mountains, exacerbation of California's existing air quality problems, and sea level rise. To address these concerns, the executive order established statewide targets to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Senate Bill 375 (2008). Senate Bill (SB) 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations to reduce vehicle emissions. SB 375 requires California's regional land use and transportation authorities to work with local agencies to achieve more compact growth patterns, thereby reducing the quantity of GHGs emitted by passenger vehicles. Each metropolitan planning organization (MPO) must adopt a Sustainable Communities Strategy or Alternative Planning Strategy, which will prescribe land use allocation in that MPO's Regional Transportation Plan. The Sustainable Communities Strategy seeks to achieve the targeted reductions in GHG emissions by encouraging compact growth in concert with transportation planning.

SB 375 requires CARB to establish GHG emission reduction targets related to transportation for each metropolitan transportation organization region. The Metropolitan Transportation Commission (MTC) is the designated MPO for Napa County and the greater Bay Area region. On July 28, 2010, the MTC approved a set of "Bay Area Principles for Establishing Regional Greenhouse Gas Reduction Targets" (Resolution 3970) proposing per-capita GHG reductions of 7 percent by 2020 and 15 percent by 2035. On September 23, 2010, CARB adopted GHG reduction targets recommended by MTC.[8] These targets will now be incorporated into the sustainable communities strategies that MPOs are required to adopt, as part of their next regional transportation plan.

The MTC, in collaboration with the Association of Bay Area Governments, BAAQMD, and the Bay Conservation and Development Commission, are collaborating to produce an integrated land-use/transportation plan to be implemented through 2040. In addition to integrating transportation and land use development plans, the plan will inaugurate a new process: the development of a Sustainable Communities Strategy. The nine Bay Area counties and 101 cities

[8] California Air Resources Board, 2010. *Regional Greenhouse Gas Emission Reduction Targets Pursuant to SB 375.*

and towns will continue to have land-use authority in their respective jurisdictions.[9]

Two of the sustainable community strategies relevant to the proposed project are:

- Reduce vehicle miles traveled within the Bay Area by providing more housing in communities for people who provide essential services but cannot afford to live there and have to commute by car from far away, raising transportation costs, congesting roads, polluting the air and wasting time that could be spent with their families; and
- Develop compact communities where transit, jobs, schools, services, and recreation are conveniently located near people's homes.[10]

Title 24 Building Efficiency Standards. The State of California regulates energy consumption under Title 24 Building Standards Code, Part 6 of the California Code of Regulations (also known as the California Energy Code). The Title 24 Building Energy Efficiency Standards were developed by the California Energy Commission and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and non-residential buildings. Newly-constructed residential buildings must comply with the State standards.

Title 24 California Green Building Standards Code. Title 24 Building Standards Code, Part 11 of the California Code of Regulations is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.

(3) Bay Area Air Quality Management District Climate Protection Program

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional

[9] Association of Bay Area Governments and Metropolitan Transportation Commission, 2011. *Plan Bay Area*.

[10] Association of Bay Area Governments and Metropolitan Transportation Commission, 2011. *Plan Bay Area*.

efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders. In June 2010, the BAAQMD adopted revised CEQA significance thresholds for GHG emissions.

On January 9, 2012, the Alameda Superior Court heard and issued a ruling in a lawsuit filed by the California Building Industry Association (CBIA) challenging the BAAQMD's CEQA thresholds of significance.[11] The CBIA claimed that the BAAQMD violated CEQA by failing to treat the thresholds as a project under CEQA and to conduct the requisite environmental review for the project. The court ruled that the adoption of the thresholds was a project under CEQA. The ruling requires that BAAQMD rescind the thresholds and study the environmental impacts. The BAAQMD has filed an appeal of this decision. As a result, and since no other thresholds have been adopted, this analysis utilizes the BAAQMD's GHG thresholds for determining climate change impact significance for this project.

(4) Napa County

The transportation sector is the largest generator of GHG emissions in Napa County, with mobile sources (automobiles and trucks) providing the greatest level of emissions. A 2010 BAAQMD report indicated that in 2007, approximately 56 percent of GHG emissions in Napa County resulted from mobile source emissions.[12]

In 2009, Napa County prepared a draft Climate Action Plan for unincorporated Napa County in collaboration with city and county staff from all Napa County jurisdictions.[13] The Climate Action Plan is intended to guide and foster effective collaboration among government, business, and community organizations in achieving state GHG reduction targets. The draft Climate Action Plan was revised in response to comments from environmental and agricultural stakeholders, the BAAQMD, and other members of the public.

On January 18, 2012, the Napa County Planning Commission recommended that the Napa County Board of Supervisor's adopt the Revised Napa County Climate Action Plan after a trial period. The Board of Supervisors conducted a public hearing on April 3, 2012. The Board of Supervisors voted to continue the Public Hearing on June 26, 2012.

The Revised Napa County Climate Action Plan describes the 2005 GHG emissions and forecasted emissions for 2020, and identifies the feasible measures that

[11] California Building Industry Association vs. Bay Area Air Quality Management District, Alameda County Superior Court Case No. RG10548693.

[12] Bay Area Air Quality Management District, 2010. *Source Inventory of Bay Area Greenhouse Gas Emissions, Base Year 2007*.

[13] Napa County Transportation and Planning Agency, 2010. *Napa Countywide Community Climate Action Plan Framework*.

Napa County intends to implement to reduce emissions by 2020 to a level 15 percent below the 2005 levels. The revised Plan provides an approach to reducing GHG emissions that can be used for tiering in the CEQA review process pursuant to state and BAAQMD CEQA guidelines.

Many of the goals, policies, and implementing actions set out in the Napa Climate Action Plan have been incorporated into St. Helena's General Plan Update 2030.

(5) City of St Helena

The commercial/industrial sector is the largest generator of GHG emissions in St. Helena, followed by residential and then transportation.[14]

City of St Helena GHG Reduction Strategy. St. Helena has joined the International Council for Local Environmental Initiatives (ICLEI) and is currently implementing an ICLEI-sponsored program to reduce GHG emissions from City-controlled sources, with a goal of reducing the City's emissions by over 20 percent in the coming years. The program includes a thorough analysis of the City's GHG inventory, a targeted emission reduction strategy, and an implementation and monitoring process to provide a framework for ongoing reduction efforts.

In coordination with the ICLEI program and the Climate Protection Campaign, the City developed the 2009 City of St. Helena Greenhouse Gas Emissions Reduction Action Plan Analysis Final Report.[15] This report includes a GHG emissions inventory of City-controlled operations and activities. The data indicated that, in 2000, the City of St. Helena municipal operations emitted 1,007 metric tons of CO2e.[16] Municipal GHG emissions varied by end-use sector, with water and wastewater operations and employee commutes generating the largest proportions of total emissions. The remainder of the City's GHG emissions included City buildings and streetlights.

Existing 1993 General Plan. Because climate change as it relates to anthropogenic emissions of GHGs is a relative new subject in municipal planning the City's 1993 General Plan does not address Climate Change or GHG emissions.

Draft General Plan Update. The City is currently in the process of updating the General Plan. The City's Draft General Plan Update includes air quality policies

[14] Napa County Transportation and Planning Agency, 2010. *Napa Countywide Community Climate Action Plan Framework*.

[15] Tellus Applied Sciences, Inc., 2009. *City of St Helena Greenhouse Gas Emissions Reduction Action Plan Analysis Final Report*.

[16] Tellus Applied Sciences, Inc., 2009. *City of St Helena Greenhouse Gas Emissions Reduction Action Plan Analysis Final Report*.

and programs that seek to maintain or improve St Helena's air quality. The following relevant policies and implementing actions of the Draft General Plan Update address air quality as it affects the community. Many of the goals, policies, and implementing actions set out in the draft Napa Climate Action Plan have been incorporated into St. Helena's Draft General Plan Update.

CLIMATE CHANGE
Transportation, Mobility, and Land Use
POLICY CC1.1 Promote the City's commitment to urban-centered growth, adopting zoning and design standards to develop mixed-use, "walkable" and "bikeable" neighborhoods. [Draft Napa Countywide Community Climate Action Plan Framework, Action T1]
POLICY CC1.2 Promote land use decisions that support the County's goals to maintain and improve the County's overall balance of jobs and housing, by locating jobs and housing in proximity to each other and improving the match between wages and housing cost. [Draft Napa Countywide Community Climate Action Plan Framework, Action T2]
Buildings and Energy
IMPLEMENTING ACTION CC1.1 Require discretionary development projects to assess and mitigate the impacts of vehicle miles traveled using transportation demand management programs, including providing transit amenities. [Draft Napa Countywide Community Climate Action Plan Framework, Action T12]
IMPLEMENTING ACTION CC2.C Implement improved energy conservation (Title 24) standards for new buildings, and other state building code standards for high performance "green" buildings, beginning in 2011. Utilize established green building standards, such as Leadership in Energy and Environmental Design (LEED) and Build it Green. [Draft Napa Countywide Community Climate Action Plan Framework, Action BE3]
IMPLEMENTING ACTION CC2.E Reduce greenhouse gas emissions from buildings and energy use. Require or request that new development projects assess greenhouse gas emissions due to energy use, and incorporate energy and water conservation measures into projects. [Draft Napa Countywide Community Climate Action Plan Framework, Action BE5]
Agriculture, Natural Resources, and Urban Forests
IMPLEMENTING ACTION CC4.D Assess the impact of land use changes, new vineyards and urban development on carbon sequestration. [Draft Napa Countywide Community Climate Action Plan Framework, AN3]

City of St. Helena Municipal Code. Section 15.53.010 of the St Helena Municipal Code adopts the California Green Building Standards Code.[17] Section 15.53.020 includes amendments to the code requiring indoor plumbing and wood-burning devices to meet specific efficiency standards. Section 15.53.030 makes CalGreen Code's voluntary measures pertaining to ceiling fan and appliance energy efficiency, reductions in the use of cement mandatory.

[17] The 2010 Edition of the California Green Building Standards Code (California Code of Regulations, Title 24, Part 11).

2. Impacts and Mitigations

This section discusses potential impacts on GHG emissions that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. It should be noted that implementation of Mitigation Measure AIR-2, which includes restriction on construction equipment idling and requires that construction equipment be properly maintained and tuned, will also reduce emissions of GHGs from the project. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.G-2.

TABLE IV.G-2 GREENHOUSE GAS EMISSIONS IMPACTS SUMMARY

CEQA Significance Criteria	*EIR Findings*
• Generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment?	LTS (see page 193)
• Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	LTS (see page 194)

Source: Urban Planning Partners, 2012.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on GHG emissions and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to GHG emissions and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the Hunter Subdivision Project would have a significant impact on the environment if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

The BAAQMD recently adopted significance thresholds for evaluating GHG emissions from projects and plans and developed guidelines for assessing these impacts. The thresholds include compliance with a Qualified GHG Reduction Strategy, a bright line emissions thresholds of 1,100 metric tons of CO2e per year, or an emission efficiency standard of 4.6 metric tons of CO2e per year per

service population. Service population is the sum of new residents and full time workers. For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO2e annually and more than 4.6 metric tons of CO2e per service population annually.

- For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO2e annually and more than 4.6 metric tons of CO2e per service population annually.
- For a project involving a stationary source, produce total emissions of more than 10,000 metric tons of CO2e annually and more than 4.6 metric tons of CO2e per service population annually.
- Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

According to the BAAQMD CEQA Guidelines, any project that would individually have a significant air quality impact would also have a significant cumulative air quality impact. The BAAQMD emission thresholds measure whether a project would have a contribution that is cumulatively considerable. Therefore, separate analysis to assess cumulatively significant adverse air quality impacts is unnecessary.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study determined that the project would have a potentially significant impact with regard to all of the above criteria for GHGs. As a result, the project is analyzed below against all of the criteria.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 and at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

There were no comments specific to GHG emissions.

b. Less-than-Significant GHG Emissions Impacts

The following impacts of the proposed project that have been found to be less than significant.

(1) Construction Period GHG Impacts

Emissions from construction equipment and worker trips during construction would generate direct GHG emissions. BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, BAAQMD also encourages the incorporation of best management practices to

reduce GHG emissions during construction where feasible and applicable. BAAQMD recommends calculating the emissions and disclosure that GHG emissions would occur during construction.

The URBEMIS modeling conducted for the air quality analysis for this DEIR (Chapter IV.C) provided the estimate of construction GHG emissions in the form of CO2. Emissions associated with construction were assumed to all occur in 2012 through 2016. Under this scenario, construction of the project would emit 106 to 359 metric tons of CO2 annually. Total construction emissions for construction, which includes equipment, truck traffic, and associated construction worker traffic, would be 1007 metric tons of CO2.

These emissions, of up to 359 metric tons of CO2 annually, for the construction period would be less than the operational BAAQMD's threshold significance of 1,100 annual metric tons. Therefore, the GHG emissions are a less-than-significant impact for the construction period.

(2) Operation Period GHG Emissions

For the purposes of this analysis, it is assumed that the project construction is completed by 2016 and the operation phase begins in 2017. The BAAQMD GHG Model (BGM) is a model used to estimate GHG emissions from land use projects; BGM is an Excel workbook tool that uses the URBEMIS file to provide GHG emissions in the form of CO2e in metric tons per year. BGM provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. The URBEMIS modeling file for the Year 2017 was used in the BGM model. This is the same model input file used to compute project air quality impacts, with the only difference being that GHG emissions were modeled for 2017 to be consistent with AB 32 targets used by BAAQMD to develop GHG significance thresholds. Annual emissions in term of metric tons per year are provided in Table IV.G-3 for proposed project full operation in 2017. See Appendix B for the model outputs.

The proposed project would cause an increase in GHG emissions of 864 metric tons of CO2e annually, which is less than the BAAQMD "bright line" threshold of 1,100 metric tons per year. Therefore, the project's GHG emissions would be considered less than significant.

(3) Conflicts with Applicable GHG Reduction Plans

The City of St. Helena 1993 General Plan does not address GHGs and GHG reduction plan has not yet been adopted for St. Helena. At the regional level, the applicable plan will be the MTC's Sustainable Communities Plan, as required under SB 375. However, MTC's plan is still under development. CARB's Scoping

TABLE IV.G-3 GREENHOUSE GAS EMISSIONS FROM PROJECT OPERATIONS

Source	Metric Tons of CO2e
Transportation	384
Area Sources	0.86
Electricity	179
Natural Gas	164
Water and Wastewater	13
Solid Waste	92
Total	**832**
BAAQMD Significance Threshold	1,100
Significant Impact	No

Source: BASELINE Environmental, Appendix B.

Plan does not directly address residential land-use planning. The proposed project would not conflict with any existing State, regional, and local plans. Therefore, this impact is less than significant.

c. Significant GHG Emissions Impacts

There would be no significant impacts related to Greenhouse Gas Emissions that would result from implementation of the proposed project.

H. HAZARDS AND PUBLIC SAFETY

This section provides an overview of the potential presence of hazardous materials[1] and other public health hazards on and near the project site and evaluates the potential impact to public health and safety and the environment that could result from development of the proposed project.

The evaluation presented in this section was based on a review of historical land use documents and regulatory agency information, a reconnaissance of the project site, and a review of other materials from State and federal agencies.

1. Setting

This section describes the existing hazardous materials setting at and near the project site, the existing regulatory framework for hazardous materials and hazardous waste and applicable worker health and safety requirements, and local policies related to public health and safety.

a. Existing Conditions

Hazardous materials may be present in the subsurface as a result of past and present land uses. Exposure to such materials could adversely affect the health of construction workers and/or the public during project construction.

Hazardous materials issues at the project site were evaluated by reviewing historical land use information, reviewing regulatory agency hazardous material records, and a site reconnaissance performed by a BASELINE Environmental Consulting professional geologist on November 3, 2011.

(1) Historical Land Uses

Potential hazardous materials issues associated with historical land uses at and near the project site were evaluated by reviewing historical aerial photographs from 1940, 1958, 1965, 1973, 1982, 1993, 1998, 2005, 2006, and 2009 and historical topographic maps from 1945, 1960, and 1993.[2,3]

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[1] The California Health and Safety Code defines a hazardous material as, "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment" (California Health and Safety Code Section 25501).

[2] Environmental Data Resources (EDR), 2012. Aerial Photo Decade Package, Hunter Property Subdivision, Inquiry Number 3231027.5.

[3] Environmental Data Resources (EDR), 2011. Historical Topographic Map Report, Hunter Property Subdivision, Inquiry Number 3231027.4.

In 1940, the project site and vicinity were primarily agricultural. Five rectangular sewage disposal ponds, totaling about 3 acres, were located to the east of the project site, the current location of houses along Hunt Avenue. No buildings were noted on or adjacent to the project site.

Between 1965 and 1973, the sewage disposal ponds were filled in and residential development began in the project vicinity. The area southeast of the site (which became a mobile home community) had been cleared by 1973, and approximately 15 mobile homes were placed at the site.

Between 1973 and 1982, a small pond (approximately 50 feet in diameter) was constructed in the southeast corner of the project site. The mobile home community to the south was built out by 1982.

Additional residential development in the project vicinity became apparent between 1982 and 1998, with homes constructed south and west of the project site, along Hunt and Monte Vista Avenues. No additional changes were noted until after 2006, when earthmoving on the northern portion of the project site for the flood control project was apparent. Based on a review of aerial photos, the small pond on-site was filled in 2009.

In summary, the primary historical land uses identified at the project site were agricultural. Aerial photos from 1940 and 1958 show orchards and what appear to be field crops on the project site; and photos on and after 1965 show rows of plants indicative of vineyards. It is likely that agricultural chemicals were applied to the project site at this time.

Prior to 1950, inorganic pesticides that contained elevated concentrations of heavy metals, such as arsenic, were commonly used in California agriculture. After 1950, organochlorine pesticides (e.g., DDT, chlordane) were commonly used in California agriculture until about the mid-1970s. Residues from inorganic and organochlorine pesticides used in the past have the potential to persist for many decades in shallow soils and can affect human health or the environment[4]. Chemical residues in shallow soils, if present, could affect development of the project site by posing a health risk to construction workers and future residents.

Environmental Data Resources, Inc. (EDR), an environmental resource service, was contracted to conduct a search of federal, state, and local regulatory agency records pertaining to past and present hazardous material uses and releases at the project site and nearby properties.[5] No records of sites using, storing, or

[4] California Environmental Protection Agency Department of Toxic Substances Control (DISC), 2008, Interim Guidance for Sampling Agricultural Properties (Third Revision), August 7, 2008.

[5] Environmental Data Resources (EDR), 2011. Radius Map Report, Hunter Property Subdivision, Inquiry Number 3231027.2s, December 28.

disposing of hazardous materials were identified within ¼-mile of the project site. No reported hazardous materials releases were identified within ¼-mile.

Eight hazardous materials release sites were identified between ¼-mile and 1 mile from the project site. Six sites were listed due to leaking USTs; releases from this type of sites typically do not migrate more than about 250 feet from the release.[6] Other releases were being investigated and remediated under low-priority cleanup programs, such as the Water Board's Spills, Leaks, Investigations, and Cleanups (SLIC) program and DTSC's Voluntary Cleanup Program (VCP). No high priority hazardous release sites, such as National Priority List (Superfund) sites, were identified in the project vicinity. The findings of the regulatory agency record search indicate that no reported hazardous materials release would have the potential to affect soils and groundwater at the project site.

(2) Wildland Fire Hazards

In accordance with California Public Resource Code Section 4201-4204 and Government Code Section 51175-51189, the California Department of Forestry and Fire Protection (CDF) has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, represent the risks associated with wildland fires. Under State law (Government Code, Section 511182), areas within very high fire hazard risk zones must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas.

b. Regulatory Setting

Numerous laws and regulations at the federal, State, and local levels regulate the management of hazardous materials. In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (Cal/EPA).[7] In turn, a local agency, the Napa County Department of Environmental Management (DEM) has been granted responsibility for implementation and enforcement of many hazardous materials regulations in St. Helena under the Certified Unified Program Agency (CUPA) Program.

In California, regional agencies are responsible for programs regulating emissions to the air, surface water, and groundwater. In the City of St. Helena, the Bay Area Air Quality Management District (BAAQMD) has oversight over air

[6] Lawrence Livermore National Laboratory, 1995. Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs), UCRL-AR-121762.

[7] California EPA (Cal/EPA), Department of Toxic Substances Control (DTSC), 2008. *Interim Guidance for Sampling Agricultural Properties* (Third Revision).

emissions, and the San Francisco Bay Regional Water Quality Control Board (Water Board) regulates discharges and releases to surface and groundwater. The Cal/EPA Department of Toxic Substances Control (DTSC) regulates remediation of sites where discharges to land could potentially present a public health risk.

Oversight of investigation and remediation of sites affected by hazardous materials releases can be performed by State agencies, such as DTSC, regional agencies, such as the Water Board, or local agencies, such as DEM, which oversees investigation and remediation of leaking underground petroleum storage tank (UST) sites in St. Helena.

The U.S. Department of Transportation (DOT) is the federal administering agency for hazardous materials transportation safety. The DOT Office of Hazardous Materials Safety oversees a national safety program to minimize the risks related to commercial transportation of hazardous materials. The federal hazardous materials transportation law (49 United States Code 5101 et seq.) is the basic statute regulating hazardous materials transportation in the United States. Federal hazardous materials transportation regulations are contained in 49 Code of Federal Regulations Parts 171-180. In California, the California Department of Transportation (Caltrans) is the implementing agency for DOT laws and regulations.

(1) Hazardous Materials Management

Routine hazardous materials management in California is administered under the CUPA program. The CUPA program was established under the 1993 California Senate Bill (SB) 1082 to reduce the cost and improve the efficiency of enforcement of hazardous materials laws and regulations. As described above, the City of St. Helena's hazardous materials programs are administered and enforced by DEM under the CUPA program. The CUPA program encompasses several hazardous materials programs: Hazardous Materials Management Plans (HMMP) program, California Accidental Release Prevention (CalARP) program, UST programs, aboveground storage tank (AST) programs, and hazardous waste generation and disposal.

(2) Contamination Investigation and Cleanup

Releases of hazardous materials may occur during use, storage, transfer, and disposal of these materials, and can contaminate soil and groundwater at these sites. Releases that affect groundwater can migrate with the groundwater and contaminate other nearby sites. Typically, the most significant hazardous materials sites affecting public health, such as the Annual Workplan (also known as State Superfund) sites, are overseen by DTSC. The Water Board and DEM are empowered to oversee the investigation and cleanup of other contaminated sites, including leaking UST sites.

(3) Agricultural Hazardous Materials Issues

The Napa County Agricultural Commissioner (NCAC) and staff are responsible for the implementation of federal, State, and local regulatory programs within Napa County. Specifically, these programs are designed to protect people and the environment and promote agriculture within the County of Napa. Agriculture in and around St. Helena uses a variety of hazardous materials, including fuels and maintenance fluids for farm equipment, fertilizers, and pesticides (including herbicides, fungicides, and insecticides).

Pesticides are regulated under the federal Insecticide, Fungicide and Rodenticide Act (FIFRA) by the U.S. EPA. This includes labeling and registration of pesticides as to how they may be used. U.S. EPA delegates pesticide enforcement activities in California to the California Department of Pesticide Regulation (DPR), under Title 3 of the California Code of Regulations and the California Food and Agriculture Code. The DPR registers pesticides for use in California, and licenses pesticide applicators and pilots, advisors, dealers, brokers, and businesses. In turn, the NCAC acts as the local enforcement for DPR. The NCAC registers licensed pest control businesses, and agricultural pest control advisors in the County in which they operate; requires permits and advanced notification for buying or using California restricted-use pesticides; and requires the completion of pesticide use reports for pesticides applied in County, including St. Helena. In addition, the NCAC investigates pesticide-related injury and illnesses, and oversees enforcement of worker training in pesticide management.

(4) Worker Health and Safety

The U.S. Department of Labor, OSHA regulates worker health and safety at the federal level. The federal Occupational Safety and Health Act of 1970 authorizes states (including California) to establish their own safety and health programs with OSHA approval; the California Department of Industrial Relations (DIR) regulates implementation of worker health and safety in California. The DIR includes the Division of Occupational Safety and Health (DOSH), which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA) program and provides consultative assistance to employers.

California standards for workers dealing with hazardous materials are contained in Title 8 of the California Code of Regulations (CCR) and include practices for all industries (General Industrial Safety Orders), and specific practices for construction and other industries. Workers at hazardous waste sites (or working with hazardous wastes as might be encountered during excavation of contaminated soil) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (Title 8, CCR Section 5192). Additional regulations have been developed for construction workers potentially exposed to lead (Title 8, CCR Section 1532.1) and asbestos (Title 8, CCR Section 1529). Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

(5) Existing 1993 General Plan

The existing 1993 General Plan does not have any policies related to hazardous materials, but has the following implementing policies regarding emergency response:

PUBLIC HEALTH AND SAFETY
Emergency Response
POLICY 8.7.2 Maintain and periodically update the City's Emergency Response Plan.
POLICY 8.7.3 Conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures.

(6) Draft General Plan Update

The Draft General Plan Update has the following policies and implementing actions related to hazards that may apply to the project:

OPEN SPACE AND CONSERVATION
Healthy Living Environment
POLICY OS4.2 Promote the clean-up of contaminated sites to protect the environment and public well-being.
POLICY OS4.3 Promote best management practices to protect soil resources from industrial, agricultural and other uses that produce or dispose of hazardous or toxic substances.
PUBLIC HEALTH, SAFETY AND NOISE
Fire and Hazardous Materials
POLICY PS4.3 Protect St. Helena residents from health and safety impacts related to the use, storage, manufacture and transport of hazardous materials.
POLICY PS4.5 Facilitate communication and education about fire safety, non-point source pollution, household hazardous waste disposal and recycling opportunities.
POLICY PS4.6 Ensure that all streets and roads are adequate in terms of width, turning radius and grade in order to facilitate access by City firefighting apparatus, and to provide alternative emergency routes of ingress and egress.
IMPLEMENTING ACTION PS4.A Designate areas in St. Helena that are prone to fire hazards and make this information available to the community.
IMPLEMENTING ACTION PS4.B Develop an ordinance to regulate development and building methods and materials used in fire-prone areas. Integrate best practices in fire resistance for all new and remodeled structures. Continue to require fire-resistant building materials and automatic sprinkler systems to be used in all new structures located in these areas.
IMPLEMENTING ACTION PS4.D Require all new development to meet the minimum fire flow rates specified by the City's Fire Code.
IMPLEMENTING ACTION PS4.E Require all new development plans to be approved by the Fire Department prior to the issuance of building permits, grading permits or final map approval.

OPEN SPACE AND CONSERVATION
IMPLEMENTING ACTION PS4.F Develop a program to inform and educate the community about potential risks, resources and roles and responsibilities for addressing fire safety in St. Helena. Inform residents of homes adjacent to public lands of their responsibility to provide fire breaks adjacent to their homes.
IMPLEMENTING ACTION PS4.G Review all new development proposals for their potential to introduce the production, use, storage and/or transport of hazardous materials, and require reasonable controls on such materials.
IMPLEMENTING ACTION PS4.H Develop a Hazardous Materials Response Plan that includes guidelines, protocols and strategies to respond to a local hazardous materials spill.
IMPLEMENTING ACTION PS4.I Strengthen regulations for the safe production, transport, handling, use and disposal of hazardous materials that may cause air, water or soil contamination. Require buffers for operations which handle substantial amounts of hazardous materials. When siting new facilities or expanding existing facilities, require buffer zones between hazardous materials facilities and residential uses, parkland, trails and open space facilities.

(7) St. Helena Municipal Code

Chapter 15.36 of the City Municipal Code adopts the 2010 California Fire Code for all buildings and construction in the City. Although the Fire Code is designed to mitigate fire danger, it contains many provisions regarding safe storing, dispensing, using, and handling of hazardous materials. In particular, businesses exceeding hazardous material storage limits in Section 105 of the Fire Code are subject to DEM hazardous material management programs.

2. Impacts and Mitigation Measures

This section discusses potential impacts on hazards and public health and safety that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.H-1.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact related to hazardous materials and public health and safety, and the scope of the analysis are described in this section. A summary of findings from the Initial Study and a summary of comments submitted during the scoping period that are relevant to the scope of this analysis is also provided.

TABLE IV.H-1 HAZARDS AND PUBLIC SAFETY IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS (see page 206)
▪ Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release or hazardous materials into the environment?	LTS (see page 206) LTS with Mitigation (See Impact HAZ-1 on page 208)
▪ Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	LTS (see page 207)
▪ Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Focused out in Initial Study (see page 205)
▪ Be 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, and would result in a significant safety hazard for people residing or working in the project area?	Focused out in Initial Study (see page 205)
▪ Be located within the vicinity of a private airstrip, and would result in a significant safety hazard for people residing or working in the project area?	Focused out in Initial Study (see page 205)
▪ Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS (see page 207)
▪ Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	LTS (see page 208)

Source: Urban Planning Partners, 2012.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact related to hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school;

- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (i.e., the "Cortese List") and, as a result, would create a significant hazard to the public or the environment;
- Be 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, and would result in a significant safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip, and would result in a significant safety hazard for people residing or working in the project area;
- Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011. The Initial Study determined that the project would have no impact with regard to the following criteria:

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (i.e., the "Cortese List") and, as a result, would create a significant hazard to the public or the environment;
- Be 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, and would result in a significant safety hazard for people residing or working in the project area; or
- Be located within the vicinity of a private airstrip, and would result in a significant safety hazard for people residing or working in the project area.

These criteria are discussed briefly below under less-than-significant impacts.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

Key comments related to hazardous materials and public health and safety, included concerns regarding ingress and egress in the event of an emergency,

and evacuation plans in the event of a levee breach. These comments are analyzed and discussed below and in Section IV.I, Hydrology and Water Quality.

b. Less-than-Significant Hazards and Public Safety Impacts

Implementation of the proposed project would result in the less-than-significant impacts described below. As these impacts would not exceed the significant thresholds described above, no mitigation measures are necessary for these less-than-significant impacts.

(1) Routine Transport, Storage, Use, and Disposal of Hazardous Materials

Construction activities would include the use of hazardous materials such as motor fuels, oils, solvents, and lubricants. During construction, development of the project would be subject to existing regulatory requirements for hazardous materials, including requirements for a Storm Water Pollution Prevention Plan (SWPPP), discuss in more detail in Section IV.I, Hydrology and Water Quality, of this Draft EIR. The SWPPP would require implementation of control measures for hazardous material storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing stormwater collection systems or waterways. Best Management Practices (BMPs) would be required to contain hazardous materials and minimize the contact of hazardous materials (e.g., fuels, lubricants, paints, solvents, and adhesives) with stormwater.

Residents in the operational phase of the proposed project would be expected to store and use small quantities of common hazardous materials (e.g., paint, cleaning solvents, and pesticides). The amount of hazardous materials expected to be stored and used on the project site would be considered insufficient to create a significant safety hazard (e.g., fire and/or explosion) to the public, or otherwise pose a significant risk to human health or the environment. Hazardous wastes generated by residents may be disposed of at the County Household Hazardous Waste collection facility located at 889-A Devlin Road in south Napa.

Implementation of local hazardous materials programs and requirements, in addition to state and federal laws and regulations, would ensure that the proposed project would not create a significant hazard to the environment through routine transport, storage, use, and disposal of hazardous materials. Based on information presented above, this potential impact would be considered less than significant.

(2) Release of Hazardous Materials into the Environment through Upset and Accident Conditions

Future residents at the project site would be bordered by agricultural uses to the north, residential properties to the south and west, and a flood control project to the east. Absent precautions, there could be a potential for aerial pesticide

applications on the adjoining agricultural properties to drift and affect residents on the project site. As residential properties often house children, the elderly, and the infirm, who may be particularly sensitive to health effects of hazardous materials, this potential impact could be magnified.

It is not possible to delineate the specific chemicals that will be used during the period the project site would be active. As chemical products are developed and reformulated, scientific knowledge regarding chemicals and environmental effects expands, and management requirements on the adjoining properties evolve, it is likely that the agricultural chemicals used near the project site would change over time.

However, a regulatory framework has been established by federal, State, and local agencies to prevent significant impacts on human health or the environment as a result of agricultural chemical use. As described in the setting section, laws and regulations from the U.S. EPA, DPR, and NCAC regulate agricultural chemical use. Pesticides used on agricultural properties are Federal EPA and State Cal-EPA registered products which must be reviewed for efficacy and human and environmental safety. Pesticide applicators are legally required to use pesticides according to labeling instructions, which are designed to prevent drift from the application site. NCAC enforces these rules, including the registration and training of applicators, the collection of pesticide use reports, responding to community complaints, and the investigation of any illnesses or accidents related to pesticide use. This existing framework of laws and regulations would reduce any potential impacts from pesticide drift to a less-than-significant level.

(3) Emit Acutely Hazardous Materials within ¼-Mile of a School

The Discovery Land Preschool, at 995 Adams Street, is located near the western project site boundary. No other existing or proposed schools are located within ¼-mile of the project site. The operation of the proposed project would not be expected to emit hazardous or acutely hazardous materials. As discussed in section (1) above, operation of the proposed project would likely involve the use of small quantities of hazardous materials for routine cleaning and maintenance, which would require minimal transport and disposal of hazardous materials. During construction, no significant releases of hazardous materials would be expected. Since the proposed project would not create significant potential impacts related to emission of hazardous and/or acutely hazardous materials, this potential impact would be considered less than significant.

(4) Emergency Response/Evacuation Plan

The City Police Department maintains City's Emergency Response Plan and is directed by the current General Plan to maintain and update the plan, as well as conduct periodic emergency response exercises. The City Municipal Code also contains provisions to ensure that new development does not interfere with emergency response or evacuation. Chapter 15.36 includes City-specific

amendments to the California Fire Code to maintain adequate roadway width and access for emergency vehicles. The Municipal Code also empowers the city manager, the fire chief, and the fire code official to make any necessary modifications to projects to ensure emergency access. The nature and location of the project would not be expected to impede emergency response or evacuation, and this potential impact would be considered less than significant.

(5) Wildland Fire Hazards

The project site is mapped as urban un-zoned, representing minimal wildfire risk.[8] This potential impact would be considered less than significant.

c. Significant Hazards and Public Safety Impacts and Mitigation Measures

This section describes potentially significant impacts that could result from implementation of the proposed project. Mitigation measures to reduce potentially significant impacts to less-than-significant levels are also discussed below.

<u>Impact HAZ-1</u>: Residual agricultural chemical residues may be present at the project site at concentrations that could affect the health and safety of construction workers and future site residents. (S)

Residual concentrations of agricultural chemicals may be present in soil at the project site. As discussed in the setting section, the entire project site was under agricultural cultivation since at least 1940 and most likely earlier. Most pesticides used in agriculture today do not persist in the environment for long, and quickly degrade to less toxic compounds. However, inorganic compounds containing metals such as mercury, copper, lead, and/or arsenic were commonly used prior to 1950 and may have been used within the project area. Highly persistent organic compounds, such as DDT, were commonly used after 1950 and may have been used within the project area from the time the site was used for agricultural purposes.

Exposure to these chemical residues during site grading and development activities could potentially affect the health and safety of construction workers and the general public. If left in place, residues could also affect future residents at the project site.

> <u>Mitigation Measure HAZ-1</u>: As a condition of approval for construction and grading permits for the project site, the following subsurface investigation and follow-up analysis shall be performed to evaluate agricultural chemical residues in site soils:

[8] California Department of Forestry and Fire Protection, 2008. *Very High Fire Hazard Severity Zones in LRA, Napa County*.

- Shallow soil samples shall be collected by a qualified environmental professional within all areas of the project area proposed for residential uses and analyzed for pesticides and herbicides in accordance with DTSC's Interim Guidance for Sampling Agricultural Properties[9]. The sampling shall be conducted prior to site grading and development activities. As specified in the Interim Guidance, any detected organic compounds or metals above naturally-occurring concentrations must be evaluated in a human health risk assessment as described in the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual or in comparison to California Human Health Screening Levels (CHHSLs).

The risk assessment shall describe measures that must be implemented to ensure that any potential added health risks to construction workers, maintenance and utility workers, site users, and the general public as a result of hazardous materials are reduced to a cumulative risk of less than 1×10^{-6} (one in one million) for carcinogens and a cumulative hazard index of 1.0 for non-carcinogens, or as required by a regulatory oversight agency. The risk assessment will be subject to review and/or approval by DEM and/or other regulatory oversight agencies.

The potential risks to human health in excess of these goals would be reduced either by remediation of the contaminated soils (e.g., excavation and off-site disposal) and/or implementation of institutional controls and engineering controls (IC/EC). IC/EC may include the use of a construction risk management plan (for mitigating exposures during construction and maintenance of the project), hardscape (buildings and pavements), importation of clean soil in landscaped areas to eliminate exposure pathways, and/or deed restrictions. If IC/EC are implemented, an Operations and Maintenance Program must be prepared and implemented to ensure that the measures adopted are maintained throughout the life of the project. If IC/EC are implemented, the Operations and Maintenance Program will be subject to review and approval by DEM and/or other regulatory oversight agencies. Implementation of the above mitigation measure would reduce this impact to a less-than-significant level. (LTS)

[9] California Environmental Protection Agency Department of Toxic Substances Control (DTSC), Interim Guidance for Sampling Agricultural Properties (Third Revision), August 7, 2008.

I. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting for the project site, including runoff, drainage, and water quality, based on information from federal, State, and regional agencies as well as information provided by the project applicant. This section also identifies potentially significant impacts that could result from implementation of the proposed project and provides mitigation measures to avoid or minimize significant impacts where feasible.

1. Setting

This section provides a description of the existing hydrological setting at and near the project site; the regulations affecting water resources at the federal, State, and local level; and local policies and programs related to hydrology and water quality.

a. Existing Conditions

This section describes the hydrological setting for the Hunter Subdivision Project including climate, stormwater and drainage, flooding, coastal hazards and water quality.

(1) Climate

The City of St. Helena has a Mediterranean climate, with distinct wet and dry seasons. The climate is characterized by long, dry, warm summers and mild, relatively wet winters. The average maximum temperature during the months of July and August is about 90 degrees Fahrenheit (˚F), and average minimum temperatures drop to 30 to 40˚F in winter. The mean annual precipitation is about 33 inches, with most of the rainfall occurring between November and April and the highest average rainfall totals occurring in January and February.[1] Snowfall in Napa County is not uncommon at higher elevations. However, the vast majority of the precipitation occurs as rain, and snow generally does not persist for more than a few days following a storm event except at the very highest elevations.[2]

(2) Stormwater and Drainage

The project site is located within the Napa River watershed, which drains an area of 426 square miles in Napa and Solano counties.[3] Above the project site, the

[1] West Yost Associates, 2003. *City of St. Helena Urban Water Management Plan.* May; and National Climatic Data Center. 2012. Data for St. Helena CA, 1971-2000, obtained from Golden Gate Weather Services Website: http://ggweather.com/climate/st_helena.pdf, viewed on January 27, 2012.

[2] Napa County Conservation, Development and Planning Department, 2005. *Napa County Baseline Data Report Version 1, Chapter 15 Surface Water Hydrology*. Prepared by Jones & Stokes and EDAW, Inc.

[3] US Army Corps of Engineers, 1998. *Napa River/Napa Creek Flood Control Project, Final Supplemental General Design Memorandum*.

Napa River drains an area of 81.4 square miles.[4] Sulphur Creek, an important tributary to the Napa River flows through the City of St Helena to its confluence with the Napa River just downstream of the project site. Hydrologic modeling of the Napa River and Sulphur Creek performed by FEMA has previously established a 100-year peak flow event (i.e., the 1 percent Annual Exceedance Probability) for the Napa River and Sulphur Creek of 21,000 cubic feet per second (cfs) and 3,300 cfs respectively.[5]

The project site is relatively flat, gently sloping to the southeast. The project site is hydrologically separated from the Napa River by a new levee (described further below under "Flooding"). Under existing conditions, precipitation that falls on the project site either infiltrates, ponds, or runs off as overland flow. Existing storm drainage infrastructure (some of which was constructed as part of the Flood Protection Project, described in more detail below) includes a detention basin on City-owned property southeast of the project site, a bypass storm drain that routes stormwater collected in the City's conveyance system to a low–flow channel that discharges to the Napa River, and existing storm drains along Hunt Avenue and Del Rio Court as shown in Figure IV.I-1.

The detention basin, which is on the inboard or western side of the levee, is drained by a levee culvert that is designed, under low- to moderate-flow conditions, to discharge stormwater by gravity flow into the Napa River. During flood events, the water level in the Napa River will rise to an elevation that prevents storm water from draining the residential area. At the flood elevation, the levee culvert gate is closed, routing stormwater into the detention basin. As water fills the basin, the pump station is activated and water is pumped from the basin to the Napa River. The pump station is equipped with a back-up diesel generator in case electricity fails during a storm.

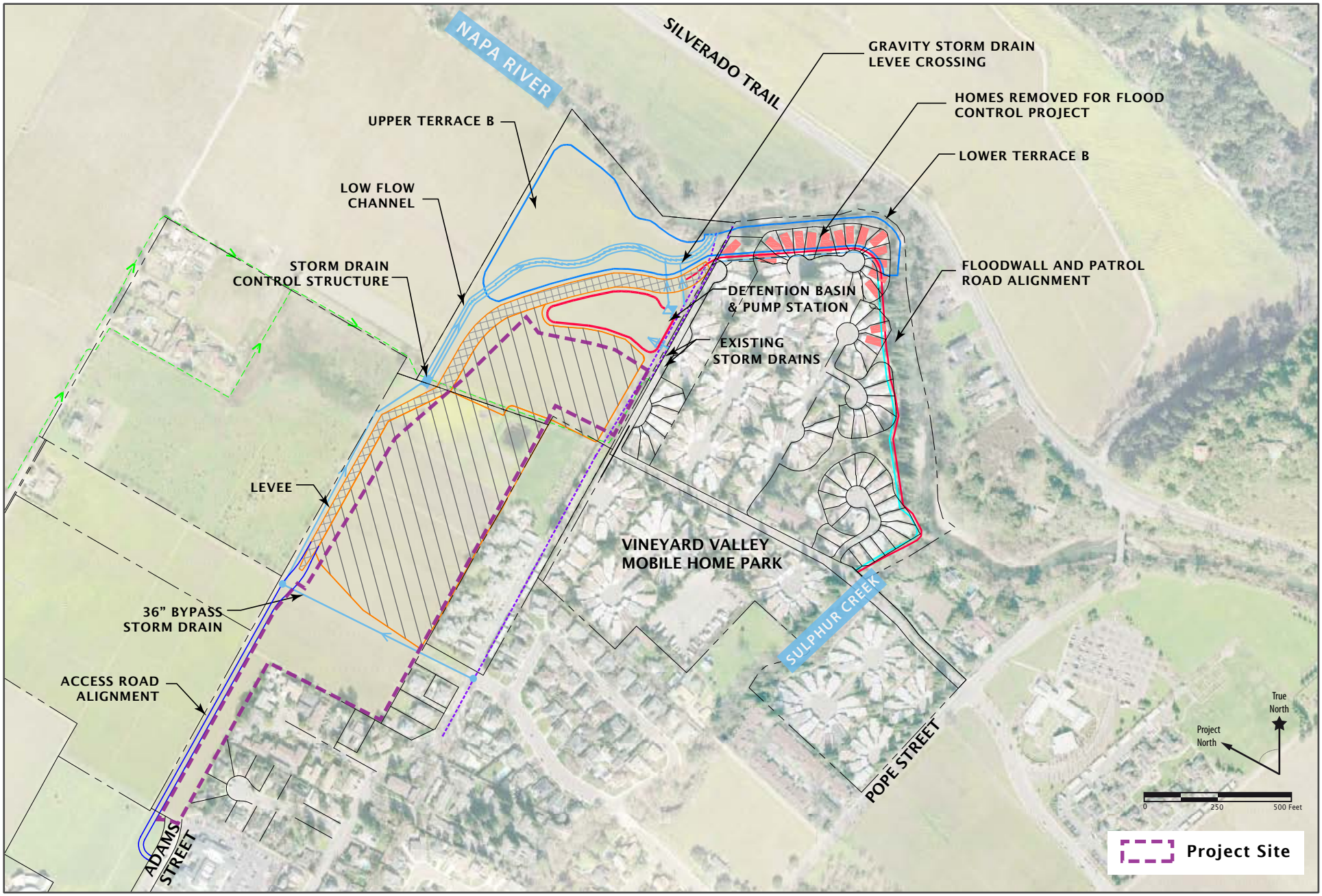
(3) Flooding

The project site is located adjacent to the Napa River and just upstream of the confluence of the Napa River and Sulphur Creek. Substantial flooding events have occurred along the Napa River 21 times since 1862.[6] Recent flooding events

[4] City of St Helena, 2006. Conditional Letter of Map Revision, City of St. Helena Comprehensive Flood Control Project.

[5] City of St Helena, 2006. Conditional Letter of Map Revision, City of St. Helena Comprehensive Flood Protection Project.

[6] Napa County Flood Control and Water Conservation District, 2011. *The History of Floods and the Creation of a New Project*, website accessed November 30, 2011: http://www.countyofnapa.org/Pages/DepartmentContent.aspx?id=4294968277.



Source: Comprehensive Flood Protection Project, Project Overview Schematic, City of St. Helena, June 2011.

Figure IV.I-1
Hunter Subdivision Project EIR
Hydrologic Features

occurred in 1986, 1995, 1997, and 2005.[7] During the December 2005 event, flood waters entered the project site and backed up against a low cinder block wall on the north side of the road along Del Rio Court (the wall is oriented east to west). An aerial photograph of the flooded project site vicinity during the December 31, 2005 flooded event is presented as Figure IV.I-2.

The eastern portion of the project site is within the historic[8] Federal Emergency Management Agency (FEMA) 100-year flood hazard boundary, specifically Zone AE, which is defined by FEMA as "the base floodplain where base flood elevations are provided" as shown in Figure IV.I-3.[9] The base flood is the flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood." The base flood is the national standard used by all federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. Base flood elevations (BFEs) are typically shown on Flood Insurance Rate Maps (FIRMs). No portion of the project site is located within the FEMA regulatory floodway.[10] No portion of the project site is located within an area that would be subject to flooding due to a dam failure.[11]

St. Helena Flood Protection Project History. After passage of Measure A[12] in 1998, the City of St. Helena and the Napa County Flood Control and Water Conservation District (District) initiated a joint study of potential flood protection projects for the City and nearby County areas. After much study, hydraulic

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[7] City of St. Helena, 2009. Staff Report: Flood Project Historical Perspective.

[8] The term "historic" is used here because the recently completed flood protection project has substantially changed the configuration of the 100-year flood zone. The current 100-year flood zone is no longer accurately depicted on the 2008 Flood Insurance Rate Map (FIRM).

[9] Federal Emergency Management Agency, 2008. *Flood Insurance Rate Map, Napa County, California, Community Panel Number 06055C0264E.*

[10] A "regulatory floodway" is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.

[11] County of Napa, 2009. General Plan Safety Element. Figure SAF-5: Napa Dam Inundation Areas.

[12] Measure A was passed by Napa County voters in March 1998, creating a Napa Flood Protection and Watershed Improvement Expenditure Plan, the Financial Oversight Committee and the Technical Advisory Panel, and establishing the half-cent sales tax to fund the local share of projects in Napa County. Each incorporated City or Town receives a share of Measure A revenue, and a share goes to Napa County for use in the unincorporated area as well. Measure A includes specific approved projects and allows the funding of other projects to improve flood protection, water supply and the health of the watershed. All the Napa County governments involved in Measure A also signed a Joint Powers Agreement to spell out structure and responsibilities.

Source: City of St. Helena Public Works Department, Photo Dated: December 13, 2005.

Figure IV.I-2
Hunter Subdivision Project EIR
Historic Flooding 2005

Project Site

Flood Hazard Area

True North

Project North

0 250 500 Feet

Prepared by: BASELINE, January 2012.

Figure IV-I.3
Hunter Subdivision Project EIR
Current Pre-Flood Control Project Regulatory 100-Year Flood Hazard Area

analysis, environmental review, project redesign based on funding constraints, and public input, the scope and design of the St. Helena Comprehensive Flood Protection Project (Flood Protection Project) was defined. The project included:

- A new levee and floodwall;
- A floodwater storage area referred to as Terrace B;
- Removal of 17 homes;
- Rerouting of drainage along Starr Avenue into a new storm drain outside the new levee; and
- A design standard that provides flood protection from the 200-year event.

The Flood Protection Project was designed, and its construction supervised, by private sector and public agency qualified engineering professionals. Following is a summary of the engineering teams and agencies involved with the Flood Protection Project:

- **City of St Helena.** The City was the sponsor agency for the Flood Protection Project and supervised the team of engineers and consultants responsible for design of the project.
- **US Army Corps of Engineers.** The US Army Corps of Engineers (Corps) conducted the preliminary site and alternatives analysis for flood control on the Napa River. This analysis was documented in the 1998 Final Supplemental General Design Memorandum.[13] The Corps remains involved in the project providing review and assessment of project design and implementation.
- **Engineering Consultants.** Several engineering consultant teams participated in the design and evaluation of the Flood Protection Project, including Mead and Hunt, MBK Engineers, Kleinfelder, and Swanson Hydrology and Geomorphology.
- **Napa County Floodplain Administrator.** In a letter dated August 2011 Donald Ridenhour, Napa County's Floodplain Administrator stated that "our review of the City's flood study and LOMR are consistent with the floodplain management requirements prescribed by FEMA and agree with the proposed floodplain revisions."[14]
- **FEMA.** In a letter dated November 2007, FEMA stated that "we have reviewed the submitted data and the data used to prepare the effective FIRM for your

[13] US Army Corps of Engineers, 1998. Napa River/Napa Creek Flood Control Project, Final Supplemental General Design Memorandum.

[14] Ridenhour, Donald, G., 2011. Letter to John Ferons, City of St. Helena, St. Helena Flood Protection Project Letter of Map Revision, August 16.

community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP."[15]

In December 2005, the City began the permit application process to implement the Flood Protection Project. While the permitting work was underway, the City submitted a Conditional Letter of Map Revision (CLOMR) application to FEMA. A CLOMR is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the Special Flood Hazard Area (SFHA). It indicates whether the project, if built as proposed, would be recognized by FEMA. In November 2007, FEMA issued a CLOMR for the Flood Protection Project. Subsequently, construction on the Flood Protection Project started in May 2009.

The major structural components of the Flood Protection Project were completed in April 2011. In December 2011, the City submitted an application for a Letter of Map Revision (LOMR) from FEMA. A LOMR is FEMA's modification to an effective FIRM, or Flood Boundary and Floodway Map, or both. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the SFHA. A LOMR officially revises the FIRM or Flood Boundary and Floodway Map, and sometimes the Flood Insurance Study report, and when appropriate, includes a description of the modifications. Once a complete LOMR application is submitted, FEMA has 90 days to review the application and issue the LOMR. As of the date of preparation of this DEIR, the LOMR for the Flood Protection Project had not been issued by FEMA.

Modified Floodplain Conditions. The Flood Protection Project substantially modified the limits of the flood hazard zone in eastern St. Helena, including in the vicinity of the project site as shown in Figure IV.I-4. While this modification does not take legal effect until FEMA issues the LOMR, the physical change to the flood hazard zone has already occurred.

When levees and floodwalls are used for flood protection, particularly when they protect land uses sensitive to flooding (e.g., residences), overtopping of the levee or floodwall is a concern. The Flood Protection Project, specifically the levee and floodwall along the Napa River and Sulphur Creek, was constructed to provide protection from a 200-year flood event while maintaining over 3.0 feet of

[15] Max H. Yuan, Project Engineer, P.E., Engineering Management Branch, FEMA, Letter to The Honorable Del Britton, Mayor, City of St. Helena, November 30, 2007.

Project Site

Flood Hazard Area

True North

Project North

0 250 500 Feet

Prepared by: BASELINE, January 2012.

Figure IV-I.4
Hunter Subdivision Project EIR
100-Year Flood Hazard Area with Flood Control Project

freeboard.[16] The standard design level of protection is for the 100-year flood event. However, the 200-year design basis was implemented to provide an additional factor of safety and to account for potential settlement, changes in channel roughness, and potential channel aggradation.[17] This elevated height of the levee and floodwall (i.e., a 200-year level of protection vs. a 100-year level of protection) and the 3.0 feet of freeboard further reduces the potential for overtopping of the levee or floodwall during extreme flood events. The flood control system was also evaluated for stability during a seismic event and was found to be stable.[18]

Based on the implementation of the Flood Protection Project and the data included in the CLOMR and the LOMR application, the configuration of the 100-year flood hazard zone in the vicinity of the project site has been effectively modified so that the project site is no longer in the FEMA flood hazard zone (Figure IV.I-4). Upon FEMA's issuance of the LOMR, the project site will not be subject to any floodplain development restrictions. Those restrictions are codified in the City's Municipal Ordinance (Chapter 15.52, Flood Damage prevention), described below under Regulatory Setting. However, it is not assured that FEMA will issue the LOMR. Therefore, until the LOMR is issued, the floodplain must be managed in accordance with the Municipal Ordinance.

(4) Coastal Hazards

Coastal hazards related to hydrologic conditions are described below.

Sea Level Rise. The earth has gone through several cycles of cooling and warming over recent geologic time, resulting in periods of glaciation with an associated sea level lowering, and climate warming with sea level rise. The most recent cycle of global climate change is a warming trend of the earth's atmosphere, which has resulted in sea level rise.

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[16] Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed. Freeboard is not required by NFIP standards, but communities are encouraged to adopt at least a one-foot freeboard to account for the 1-foot rise built into the concept of designating a floodway and the encroachment requirements where floodways have not been designated. Freeboard results in significantly lower flood insurance rates due to lower flood risk.

[17] Mead & Hunt, MBK Engineers, and Kleinfleder, 2006. City of St. Helena Comprehensive Flood Protection Project Application for a Conditional Letter of Map Revision to the FIRMs for Napa County, California: Community No. 0602050275A City of St. Helena, California: Community No. 0602080005D.

[18] Kleinfelder, 2006. Draft Supporting Data, FEMA Riverine Structure Form, St. Helena Flood Protection Project, St Helena, California.

Rates of sea level rise may vary at specific locations, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay area, the background rate of sea level rise has been estimated to be approximately 0.08 inch per year over the past 100 years.[19] Based on the project site's elevation of approximately 220 feet above mean sea level (msl), sea level rise is not likely to affect the project vicinity.

Seiche. A seiche is a standing wave in an enclosed or partially enclosed body of water. Seiches have been observed in lakes, bays, and harbors, and can be triggered by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Coastal measurements of sea level often show seiches with amplitudes of a few centimeters and periods of a few minutes due to oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes.

Earthquake faults in the Bay Area such as the San Andreas Fault and the Hayward Fault, as well as active faults within Napa County such as the Green Valley, West Napa, Cordelia, and Hunting Creek faults, could produce significant ground shaking within the County (see Geology and Seismicity for additional discussion). Seiches would be limited to the larger reservoirs in the county (e.g., Lake Berryessa, Bell Canyon Reservoir, Lake Hennessey, Rector Reservoir, and Milliken Reservoir). The closest large reservoir to the project site is Bell Canyon Reservoir, located approximately 3 miles to the north. As effects of a seiche would be felt immediately along the shorelines of these reservoirs, seiches would not be likely to affect the project vicinity due to the distance from the bodies of water.

Tsunamis. Tsunamis are long-period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would most likely originate west of the bay, in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled.

The potential for damage by a tsunami in the project vicinity is considered remote because the area is at an elevation of approximately 220 feet above sea level and is not directly exposed to an ocean or bay. San Pablo Bay is located more than 25 miles to the south, and the Pacific Ocean more than 40 miles to the west.

Extreme High Tide. Extreme high tides in San Francisco Bay result from the combined effects of astronomical high tides (related to the lunar cycle) and other factors, including winds, barometric pressure, ocean temperatures, and freshwater runoff. In California, the highest astronomical tides occur in the summer and

[19] National Oceanic & Atmospheric Administration (NOAA), 2012. Mean Sea Level Trend Station 9414290 San Francisco, California. Website: tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9414290, accessed January 27, 2012.

winter, and therefore extreme high tides are most likely to occur during these times. Based on the 129-year record of daily high tide, the U.S. Army Corps of Engineers has developed an estimated 100-year high tide elevation (an extreme high tide with a probability of occurrence every 100 years) for various locations in the bay. The elevation of the estimated 100-year tide at the Petaluma River at San Pablo Bay and Sonoma Creek near San Pablo Bay is 6.5 feet NGVD.[20] The San Francisco Bay Conservation and Development Commission (BCDC) evaluated the effects of sea level rise due to climate change on 100-year tides. The BCDC projects the 100-year high tide at Sonoma Creek will change from 6.5 feet NGVD to 6.9 feet NGVD.[21] Consequently, it is unlikely that the one-percent (100-year) tide would have a significant environmental impact on the project site, as the elevation is approximately 220 feet above msl.

(5) Water Quality

This section describes storm water, surface water, and groundwater quality in the project vicinity, as well as State and regional regulatory framework for water quality. Water quality in surface and groundwater bodies is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards. The project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Water Board), which is responsible for implementation of state and federal water quality protection statutes, regulations, and policies in the vicinity of the project site. The Water Board implements the Water Quality Control Plan (Basin Plan),[22] a master policy document for managing water quality in the region.

Stormwater Quality. Stormwater from the project vicinity that does not percolate into the ground is collected in the City storm drainage system and ultimately discharged to the Napa River. Contaminants on the ground surface may become entrained in stormwater runoff, and those contaminants can affect receiving waters and areas downstream. In the project vicinity, potential contaminants of concern would include motor oil and other contaminants from vehicle parking on streets and driveways, and pesticides and fertilizers from vineyards and residential landscaping.

Municipal Stormwater Management Requirements. California's municipal stormwater permitting program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). MS4 Permits were issued in two phases. Under

[20] USACE, 1984. San Francisco Bay Tidal Stage vs. Frequency Study.

[21] San Francisco Bay Conservation and Development Commission (BCDC), 1988. Sea Level Rise: Predictions and Implications for San Francisco Bay. Prepared by Moffatt and Nichol Engineers, Wetlands Research Associates, Inc., and San Francisco Bay Conservation and Development Commission Staff.

[22] San Francisco Bay Regional Water Quality Control Board, 1995 as appended through 2010. Water Quality Control Plan. Accessed January 27, 2012 at: www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.

Phase I, which was initiated in 1990, the Regional Water Quality Control Boards adopted individual NPDES stormwater permits for medium municipalities (serving between 100,000 and 250,000 people) and large municipalities (serving 250,000 people). Most of these permits were issued to a group of co-permittees encompassing an entire metropolitan area. As part of Phase II, the State Water Resources Control Board adopted a statewide General Permit for the Discharge of Storm Water from Small MS4s (Water Quality Order No. 2003-0005-DWQ, General Permit No. CAS000004) (Phase II General Permit) to provide permit coverage for smaller municipalities, including non-traditional small MS4s such as military bases, public campuses, and prison and hospital complexes.

The City of St. Helena is regulated under the Phase II General Permit and is a partner in the Napa County Stormwater Management Program; more details regarding City stormwater requirements are provided under "Local Policies" below. Oversight is provided by the Regional Water Quality Control Board.

State Water Board Low Impact Development Policy. On January 20, 2005, the State Water Resources Control Board adopted the Low Impact Development (LID) Policy, which, at its core, promotes the idea of "sustainability" as a key parameter to be considered during the design and planning process for future development. The State Water Resources Control Board has directed its staff to consider sustainability in all future policies, guidelines, and regulatory actions.

The sustainability practice promotes LID to benefit water supply and contribute to water quality protection. LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional stormwater management. The Regional Water Quality Control Boards are advancing LID in California in various ways, including provisions for LID requirements in renewed Phase I municipal stormwater NPDES permits. The Phase II General Permit, a draft update of which is currently in review, will likely include additional LID requirements to achieve water quality goals and to protect against stream channel hydromodification.

Surface Water Quality. The Napa River is included on the 2006 Clean Water Act (CWA) 303(d) list of water quality limited segments due to impairment from nutrients, pathogens, and sedimentation/siltation.
Development of a nutrient Total Maximum Daily Load (TMDL)[23] is in progress. The pathogen TMDL has been completed by the San Francisco Bay Regional Wa-

[23] On a broad level, the TMDL process leads to a "pollution budget" designed to restore the health of a polluted body of water. The TMDL process provides a quantitative assessment of water quality problems, contributing sources of pollution, and the pollutant load reductions or control actions needed to restore and protect the beneficial uses of an individual waterbody impaired from loading of a particular pollutant. More specifically, a TMDL is defined as the sum of the individual waste load allocations for point sources, load allocations for non-point sources, and natural background such that the capacity of

ter Quality Control Board (Water Board) and the TMDL has been incorporated into the Basin Plan as an amendment. The Basin Plan amendment includes water quality targets for pathogen indicators Escherichia coli (E. coli), fecal coliform, and total coliform, as well as density-based (load) limits for these pathogen indicators. The Basin Plan amendment also includes wasteload allocations for individual municipal dischargers including on-site sewage disposal systems, sanitary sewer systems, municipal stormwater runoff, grazing lands, and confined animal facilities.

The Water Board also adopted a Basin Plan amendment incorporating a TMDL for sediment and a Habitat Enhancement Plan for the Napa River. The amendment includes numeric targets for spawning gravel permeability and streambed scour. The TMDL also includes load allocations (for non-point sources) for land areas upstream and downstream of dams, in addition to wasteload allocations for urban runoff and wastewater discharges. This Basin Plan amendment was approved by the Water Board in November 2009.

The Napa River discharges to the Napa Sonoma Marsh, on the margins of San Pablo Bay. San Pablo Bay is on the 2006 Clean Water Act (CWA) 303(d) list due to impairment from chlordane, DDT, dieldrin, dioxins and furans, exotic species, mercury, nickel, PCBs, and selenium. TMDLs in development include the PCB TMDL for San Francisco Bay (which includes San Pablo Bay), and the Selenium TMDL for the North San Francisco Bay (which includes a portion of the Sacrament/San Joaquin Delta, Suisun Bay, Carquinez Strait, San Pablo Bay, and the Central Bay).

The mercury TMDL for San Francisco Bay (which includes San Pablo Bay) has been completed and the Basin Plan amendment has been approved. The Basin Plan amendment includes numeric water quality objectives for mercury in fish tissue, and also includes load and wasteload allocations by source category, including urban stormwater and municipal wastewater.

In addition, the City of St. Helena is subject to the TMDL for diazinon and pesticide-related toxicity in all San Francisco Bay Area urban creeks, which was incorporated as a Basin Plan amendment in 2005. The TMDL imposes toxicity targets for urban creek water and sediment, and a diazinon concentration target for urban creeks. TMDL targets shall be achieved through regulatory programs, education and outreach, and research and monitoring. The TMDL attainment

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the water body to assimilate pollutant loading (the loading capacity) is not exceeded (40 CFR §130.2). In other words, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards which will insure the protection of beneficial uses. This calculation also includes a margin of safety and consideration of seasonal variations. In addition, the TMDL contains the reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed.

strategy will primarily focus on integrated pest management and the use of less toxic pest control methods. The U.S. Environmental Protection Agency (EPA) phased out urban diazinon applications at the end of 2004; however, replacements for diazinon (such as pyrethroids) may now pose potential water quality and sediment concerns.

In summary, the adopted TMDLs discussed above contain water quality standards in the form of wasteload allocations that quantify the amount of pollutants that may be discharged into an impaired water body from the various contributing sources, in addition to water quality objectives for receiving waters. This includes water quality standards for urban runoff (and wastewater discharges) with which the City of St. Helena must comply. One strategy used by local urban runoff (stormwater) management programs to move toward achieving TMDL standards is to identify the sources of TMDL pollutants in urban runoff and then to implement control measure programs for these pollutants.

Groundwater Quality. The Basin Plan[24] establishes beneficial water uses for groundwater basins within the region. The Napa Valley groundwater subbasin underlies the project site and is listed in the Basin Plan as providing the beneficial uses of municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply.

Groundwater quality throughout most of the Napa Valley region is generally suitable for most urban and agricultural uses, with only local impairments occurring. The primary constituents of concern are total dissolved solids (TDS), nitrate, boron, and organic compounds.[25]

The City of St. Helena has two active groundwater wells that are sources of potable water for the City. These groundwater supplies are treated to remove iron and manganese and are chlorinated prior to entering the City of St. Helena's distribution system.[26] An existing groundwater well on the project site has been used for dust control and irrigation of riparian plants for the Flood Protection Project.

A number of programs at the State, regional, and local level have been implemented to protect groundwater from releases of hazardous materials. Those programs are discussed further in Section IV.H, Hazards and Public Safety.

[24] San Francisco Bay Regional Water Quality Control Board, 1995 as appended through 2010, op.cit.

[25] City of St. Helena, 2006. Draft Environmental Impact Report Wastewater Treatment and Reclamation Plant Upgrade Project, St. Helena, CA.

[26] Ibid.

b. Regulatory Setting

Applicable policies related to hydrology and water quality are described below.

(1) Existing 1993 General Plan

The existing 1993 General Plan contains the following policies that apply to the project:

PUBLIC HEALTH AND SAFETY
Flood Hazards
POLICY 8.6.1 Prohibit the introduction of intensive urban development into designated Flood Hazard Areas.
POLICY 8.6.3 Prohibit the construction of structures or flood barriers which would unnaturally divert flood waters or would increase flood hazards in other areas.
POLICY 8.6.4 Require a grading permit for any filling, grading, or dredging that may increase potential for flood damage.
POLICY 8.6.7 Encourage the use of Flood Hazard Areas within new development areas for open space and recreation uses, including parks and greenbelts.
POLICY 8.6.8 Ensure that any new development that is allowed within the floodplain is constructed so that the lowest floor elevation is at least one foot above the 100-year flood level.
PUBLIC FACILITIES AND SERVICES
Storm Drainage/Flooding
POLICY 9.4.1 New development should provide adequate drainage improvements to handle generated storm runoff from the site to the nearest major watershed. The watersheds include York Creek, Sulphur Creek and the Napa River.
POLICY 9.4.2 If a City storm drain is available, the developer should participate in the funding to the extent it benefits the development.
POLICY 9.4.3 Extension of existing downstream drains which have adequate capacity should be completed at the developer's expense with future reimbursement for oversizing costs at the time of connection by others.
POLICY 9.4.4 Grading and earth filling within the designated 100-year floodway should not be permitted except for public streets or bridges.
POLICY 9.4.5 Encroachments into the 100-year floodway should not result in any increase in flood levels during the occurrence of the base flood discharge.
POLICY 9.4.6 Standards for subdivisions should include the following: ▪ All preliminary subdivision proposals shall identify the flood hazard area and the elevation of the base flood. ▪ All final subdivision plans will provide the elevation of proposed structure(s) and pads. If the site is filled above the base flood, the final pad elevation shall be certified by a registered civil engineer or surveyor and provided to the floodplain administrator. ▪ All subdivision proposals shall be consistent with the need to minimize flood damage. ▪ All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage. ▪ All subdivisions shall provide adequate drainage to reduce exposure to flood hazards.

(2) Draft General Plan Update

The Draft General Plan Update has the following policies and implementing actions related to hydrology that may apply to the project:

COMMUNITY DESIGN
High Quality and Sustainable Design
CD1.5 Require stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques such as bio swales and other best management practices to manage stormwater. (Also see the Open Space and Conservation Element, Topic Area 3)
OPEN SPACE AND CONSERVATION
Water Quality and Conservation
OS3.1 Promote stormwater management techniques that minimize surface water runoff in public and private developments. Utilize low impact development techniques to best manage stormwater through conservation, on-site filtration and water recycling, and ensure compliance with the National Pollution Discharge Elimination System (NPDES) permit.
IMPLEMENTING ACTION - OS3.A Continue to implement the stormwater management program to ensure compliance with the City's NPDES permit.
IMPLEMENTING ACTION - OS3.C Minimize stormwater runoff and pollution by encouraging low impact design features, such as pervious parking surfaces, bio swales and filter strips in new development projects.
PUBLIC SERVICES AND FACILITIES
Storm Drainage/Flooding
PF3.1 Ensure that new developments provide adequate drainage improvements and detention to mitigate flooding from increased stormwater runoff attributable to the development.
PF3.2 Ensure that encroachments into the 100-year floodplain do not result in any increase in flood levels during the occurrence of the base flood discharge.
IMPLEMENTING ACTION PF3.A Require developers to provide adequate drainage improvements to mitigate storm runoff from the site to the nearest major waterway. Drainage improvements can include measures such as creating settling basins, bio-swales and the use of pervious materials for driveways and parking areas. Key waterways include York Creek, Sulphur Creek and the Napa River.
IMPLEMENTING ACTION PF3.B Require developers to finance and pay for the extension of existing downstream drains to ensure adequate capacity to accommodate new development. The City may provide future reimbursement for oversizing costs at the time of connection by others.
PUBLIC SERVICES AND FACILITIES
IMPLEMENTING ACTION PF3.C Consistent with Municipal Code Section 16.32.170, continue to prohibit the creation of new residential lots that will be subject to periodic inundation from floodwaters. New development proposals on existing lots of record must identify flood hazard areas and mitigate all impacts to base flood levels and potential flood damage from grading, filling and construction through proper drainage, construction and location of utilities, in accordance with FEMA requirements.
IMPLEMENTING ACTION PF3.E At the time of development review, require that post-project runoff be limited to pre-project peak flow rates for the five-year and ten-year storms as a condition of approval. (Also see Climate Change Element, Topic Area 3)
IMPLEMENTING ACTION PF3.G Implement low impact development practices for new development and redevelopment projects to reduce stormwater peak flow rates and volumes from smaller, more frequently occurring storm events.

PUBLIC HEALTH, SAFETY AND NOISE
Flood Hazards
PS5.1 Minimize the risk to people, property and the environment caused by flooding hazards. Ensure that new development is sited to minimize potential damage from a 100-year flood. Continue to require that any new development that is allowed within the floodplain is constructed so that the lowest floor elevation adheres to current FEMA standards. Prohibit the siting of uses within Flood Hazard Areas that could result in health and safety hazards due to the release of chemicals or other substances as a result of inundation or erosion.
PS5.2 Ensure that new development within the 100-year floodplain is properly graded to mitigate flood effects and does not cause increases or expansion of the flood area.
PS5.5 Prohibit new development within areas designated as Floodway in the current FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM).
IMPLEMENTING ACTION PS5.D Require that sewer and water lines in areas subject to flooding are sited to avoid contamination and flooding when pipelines break.
IMPLEMENTING ACTION PS5.E Prohibit the introduction of intensive urban development in designated Flood Hazard Areas.

(3) St. Helena Municipal Code

Title 13 of the St. Helena Municipal Code, "Public Services," includes Section 13.32, which contains the City's Stormwater and Runoff Pollution Control Ordinance. The ordinance empowers the City public works department to enforce stormwater pollution regulations, including:

- Prohibiting illicit discharges to the stormwater conveyance system;
- Establishing minimum requirements for stormwater management, including source control requirements, to prevent and reduce pollution;
- Establishing requirements for development project site design to reduce stormwater pollution and erosion;
- Establishing requirements for the management of stormwater flows from development projects, both to prevent erosion and to protect and enhance existing water-dependent habitats; and
- Establishing standards for the use of off-site facilities for stormwater management to supplement on-site practices at new development sites.

City stormwater management standards are described further below.

Title 15, "Buildings and Construction," includes

Chapter 15.52, "Flood Damage Protection." This chapter contains the City's flood damage control provisions. It includes standards for permitting and construction within established flood hazard zones, and gives the City Engineer the authority to administer, implement, and enforce floodplain management regulations through the review and approval of development applications. Specifically, 15.52 specifies that all "new construction and substantial improvement of any residential structure shall have the lowest

floor, including basement in AE, AH and A1-A30 Zones, elevated to eighteen (18) inches above the base flood elevation."

Title 16, "Subdivisions," includes

Chapter 16.32, "Design Standards and Improvements" includes Section 16.32.070, "Drainage," which requires stormwater runoff from subdivisions to be collected and conveyed by an approved storm drainage system. The storm drainage system shall be designed by a registered civil engineer for ultimate development of the watershed and shall be capable of collecting and conveying runoff generated by the ten-year flood. The system shall provide for the protection of abutting and off-site properties that may be adversely affected by any increase in runoff attributed to the development; off-site storm drain improvements may be required to satisfy this requirement. In addition, retention ponds, drainage swales and/or check dams may be required to reduce off-site peak storm flow generated by projects to the historic flow.

Title 17, "Zoning," includes:

Section 17.88.030, "Subdivisions," which requires that all subdivision proposals and other proposed new developments be reviewed by the City engineer to assure that (1) all such proposals are consistent with the need to minimize flood damage; (2) all public utilities and facilities, such as sewer, gas, electrical and water systems are located, elevated, and constructed to minimize or eliminate flood damage; and (3) adequate drainage is provided so as to reduce exposure to flood hazards.

Section 17.88.050, "FEMA Requirement," which requires that new construction or replacement of existing construction be in conformance with the standards and regulations of the Federal Emergency Management Agency (FEMA). (Prior code Section 27.169).

(4) City Stormwater Management Standards

The City of St. Helena has developed stormwater management standards that apply to discretionary and ministerial projects submitting an application for a use permit, building permit, and/or grading permit after September 13, 2005.[27] The standards include both a construction and post-construction phase review and permitting process implemented by the St. Helena Public Works Department.

If a project is subject to construction-phase requirements, the applicant must prepare an Erosion Control Plan (ECP) for sites of less than one acre and a Storm Water Pollution Prevention Plan (SWPPP) for sites of one acre or more. The plans

[27] City of St. Helena, 2005. Stormwater Management Standards, Construction, and Post-Construction.

must depict Best Management Practices (BMPs) that will be implemented during construction to eliminate or minimize the discharge of pollutants.

The City's Public Works Department conducts site inspections to evaluate the effectiveness of the construction-phase BMPs using the following performance standards:

- No measurable increase of pollution (including but not limited to sediment, concrete and stucco, automotive fluids, hazardous materials, and pathogens) in runoff from the site;
- No slope erosion; and
- Water velocity moving off-site must not be greater than pre-construction levels.

If a project is subject to post-construction requirements, the applicant must submit a Stormwater Runoff Management Plan to the Public Works Department. The Stormwater Runoff Management Plan must include (1) a description of the project's conditions of concern; (2) a site map showing the locations and types of post-construction BMPs that will be incorporated into the project design, including site design, source control, and treatment control BMPs; and (3) a maintenance agreement for the long-term operation of BMPs.

2. Impacts and Mitigation Measures

This section discusses potential impacts on hydrology and water quality that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.I-1.

c. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on hydrology and water quality and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to hydrology and water quality and a summary of comments submitted during the scoping period is also provided as relevant to the scope of this analysis.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, implementation of the proposed Hunter Subdivision Project would have a significant impact on hydrology and water quality if it would:

TABLE IV.I-1 HYDROLOGY AND WATER QUALITY IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Violate any water quality standards or waste discharge requirements?	LTS with Mitigation (see Impact HYD-1 on page 235 and Impact HYD-2 on page 239)
▪ Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted)?	LTS (see page 233)
▪ Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site?	LTS (see page 233)
▪ Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?	LTS (see page 233)
▪ Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	LTS (see page 234)
▪ Otherwise substantially degrade water quality?	LTS with Mitigation (see Impact HYD-1 on page 235, and Impact HYD-2 on page 239)
▪ Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	LTS with Mitigation (see Impact HYD-3 on page 241)
▪ Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	LTS with Mitigation (see Impact HYD-3 on page 241)
▪ Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	LTS with Mitigation (see Impact HYD-4 on page 242)
▪ Inundation by seiche, tsunami, or mudflow?	Focused out in Initial Study (see page 232)

Source: Urban Planning Partners, 2012.

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a substantial risk of loss, injury, or death as a result of inundation by seiche, tsunami, or mudflow.

(2) Initial Study Findings

An Initial Study for the project was completed in June, 2011. The Initial Study determined that the project would have no impact with regard to the following criteria:

- Inundation by seiche, tsunami or mudflow.

As a result, no further discussion of these criteria is provided in the EIR.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

Comments concerning hydrology and water quality addressed the following:

- *Water quality impacts related to runoff from the project site on the detention pond and Napa River.* Water quality impacts related to runoff from the proposed project site are evaluated under Impacts HYD-1 and HYD-2, below.

- *Potential financial costs that could be incurred by the City (and taxpayer liability) if the levee failed and flooded the new development.* Financial liability and the economics of the project are not a CEQA issue and are not further discussed in this section.
- *Displacement of flood water storage capacity associated with all the new concrete, particularly at Starr Avenue and Hunt Street, where flooding already occurs.* If FEMA recognizes the new levee and floodwall, the project site will no longer be located within the floodplain and placement of concrete or other types of fill at the project site will not displace storage capacity associated with the 100-year flood event. If FEMA does not recognize the levee, then placement of fill in the eastern portion of the site could displace floodplain storage. Please refer to Impact HYD-3 for discussion of potential impacts related to encroachment into the 100-year flood hazard area.
- *Flooding impacts to homes on Starr Avenue, Meadowcreek and the Hunts Grove complex, in the event of a levee breach.* The potential impacts associated with breach and/or overtopping of the levee are described below under Impact HYD-4.

d. Less-than-Significant Hydrology and Water Quality Impacts

Implementation of the proposed project would result in less-than-significant impacts described below. Since these impacts would not exceed the significant thresholds described above, no mitigation measures are necessary for these less-than-significant impacts.

(1) Deplete Groundwater Supplies or Interfere with Groundwater Recharge

Although the project will be connected to the City municipal water supply, the applicant proposes to use an existing on-site well for all exterior landscaping. As discussed in Section 4.K Public Services, Recreation and Utilities, water use from the on-site groundwater well would not exceed safe yield and would not result in depletion of groundwater resources.

The proposed project would introduce new impervious surfaces, which could interfere with groundwater recharge by diverting some precipitation to the storm drainage system. However, the area of additional impervious surface would be considered insignificant compared to the area of the groundwater basin. In addition, landscaping around the structure and pavements would be pervious and would allow infiltration of rainfall. These areas would also be actively irrigated which would result in additional infiltration. This potential impact would be considered less than significant.

(2) Drainage Patterns

The proposed project would change the existing drainage pattern on-site as the site would change from largely agricultural to residential. However, the drainage

pattern introduced by the project would not modify streams or rivers as none currently traverse the project site. As discussed under Stormwater Drainage Systems, below, the proposed project would include installation of a storm drainage system that would be connected to the City's drainage system. The modification would not cause significant erosion or flooding because runoff would be controlled and collected in storm drain pipes and discharged in accordance with City requirements. This potential impact would be considered less than significant.

(3) Exceed Capacity of Stormwater Drainage Systems

Existing General Plan Policy 9.4.1 and Draft General Plan policies PF3.A and PF3.E require review of development plans by the City to ensure that new development provides adequate storm drainage infrastructure and that post-project runoff is limited to pre-project peak flow rates for the five- and ten-year storms.

Implementation of the proposed project would involve placement of new impervious surfaces on the project site, including buildings, access roadways, bicycle and pedestrian pathways, and surface parking lots. The placement of new impervious surfaces would create stormwater runoff. The major storm drain infrastructure in the project vicinity was constructed as part of the Flood Protection Project for future project use. It includes a storm drain running through the project site within the future Starr extension right-of-way and an existing detention basin immediately north of the project on City-owned property. The Starr storm drain and the detention basin have been sized to accommodate the proposed project based on runoff coefficients associated with its planned residential density, so there is sufficient capacity to serve the project and detention of post-project runoff is not necessary.[28] Furthermore, the Starr extension storm drain was sized to accommodate drainage from the area south of the pipe and the detention basin for drainage from that area between the pipe and the basin.

The southerly portion of the project site is proposed to drain via in-street gutter flow and storm drain pipes and discharge into the existing Starr extension storm drain at several different locations. The rest of the project is proposed to drain to the east via gutter flow and storm drain pipes and discharge into the existing detention basin via a new outfall. The proposed grading and drainage design and resulting sub-watersheds described above are consistent with the design of the Flood Protection Project. All storm drain pipes have been sized to accommodate a 10-year storm and designed at slopes to provide required self-cleaning velocities. Therefore, runoff water would not exceed capacity of existing or planned systems and this potential impact would be considered less than significant.

[28] Jeff Kashiwada, Project Engineer, Mead and Hunt, Inc. (engineering design firm for internal drainage on land side of the Flood Protection Project). Email communication with BASELINE, April 27, 2012.

e. Significant Hydrology and Water Quality Impacts

Implementation of the proposed project could result in significant impacts related to water quality and flooding, as described below.

Impact HYD-1: Construction period activities within project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of Napa River and downstream receiving waters. (S)

In areas of active construction, soil erosion may result in discharges of sediment-laden stormwater runoff into Napa River, if not properly controlled. Additional sediment input from construction of the project could contribute to degradation of downstream water quality and impairment of beneficial uses. Sediment can also be a carrier for other pollutants, such as heavy metals, nutrients, pathogens, oil and grease, fuels and other petroleum products. In addition to sediment, other pollutants associated with the various phases of construction, such as trash, paint, solvents, sanitary waste from portable restrooms, and concrete curing compounds, can discharge into and impair receiving waters if released during construction.

Mitigation Measure HYD-1: Consistent with the requirements of the statewide Construction General Permit and City Stormwater Management Standards, the project applicant shall prepare and implement a SWPPP designed to reduce potential adverse impacts to surface water quality through the project construction period. The SWPPP shall be designed to address the following objectives: (1) all pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled; (2) where not otherwise required to be under a Water Board permit, all non-storm water discharges are identified and either eliminated, controlled, or treated; (3) site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the BAT/BCT[29] standard; and (4) stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

[29] As defined by U.S. EPA, Best Available Technology (BAT) is a technology-based standard established by the CWA as the most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable. Best Conventional Technology (BCT) is a technology-based standard that applies to treatment of conventional pollutants, such as total suspended solids.

The SWPPP shall be prepared by a Qualified SWPPP Developer (as defined by the Construction General Permit). The SWPPP shall include the minimum BMPs required in Attachment C of the Construction General Permit for Risk Level 1 dischargers, Attachment D for Risk Level 2 dischargers, or Attachment E for Risk Level 3 dischargers (as applicable, based on final determination of the project's Risk Level status [to be determined as part of the Notice of Intent for coverage under the Construction General Permit]). These include: BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, runoff controls, and BMP inspection/maintenance/repair activities. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association (CASQA) Stormwater Best Management Handbook-Construction. The SWPPP must be approved by the City prior to issuance of a grading permit.

The SWPPP shall include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations, and as appropriate (depending on the Risk Level), sampling of the site effluent and receiving waters (receiving water monitoring is only required for some Risk Level 3 dischargers). A Qualified SWPPP Practitioner shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities. If the project is Risk Level 2 or 3, the project applicant shall also prepare a Rain Event Action Plan as part of the SWPPP.

Based on CASQA guidance, the following are the types of BMPs that shall be implemented for each phase of the development project, subject to review and approval by the Water Board.

<u>Erosion Control BMPs</u>

- **Scheduling.** To reduce the potential for erosion and sediment discharge, construction shall be scheduled to minimize ground disturbance during the rainy season. The project applicant shall:
  - Sequence construction activities to minimize the amount of time that soils remain disturbed.
  - Stabilize all disturbed soils as soon as possible following the completion of ground disturbing work.
  - Install erosion and sediment control BMPs prior to the start of any ground-disturbing activities.
  - Where feasible, existing vegetation shall be preserved to provide erosion control.
  - Hydroseeding, geotextile fabrics and mats, mulch, or soil binders shall be used, as appropriate, to reduce erosion on exposed soil surfaces.

- **Earth Dikes, Drainage Swales, and Slope Drains.** Earth dikes, drainage swales, or slope drains shall be constructed to divert runoff away from exposed soils and stabilized areas, and redirect the runoff to a desired location, such as a sediment basin.
- **Outlet Protection and Velocity Dissipation Devices.** Rock, concrete rubble, or grouted riprap shall be installed at culvert and pipe outlets to drainage conveyances, to prevent scour of the soil caused by concentrated high-velocity flows.

Sediment Control BMPs

- **Silt Fence/Fiber Roll.** Silt fences or fiber rolls shall be installed around the perimeter of the areas affected by construction, at the toe of stockpile slopes, around storm drain inlets, and at outfall areas, to prevent off-site sedimentation.
- **Street Sweeping and Vacuuming.** Areas with visible sediment tracking shall be swept or vacuumed daily, to prevent the discharge of sediment into the stormwater drainage system or creeks.
- **Storm Drain Inlet Protection.** Storm drains shall be protected using a filter fabric fence, gravel bag barrier, or other methods, to allow sediments to be filtered or settle out before runoff enters drain inlets.
- **Check Dams.** Barriers shall be constructed of rock, gravel bags, sand bags, or fiber rolls across a constructed swale or drainage ditch, to reduce the effective slope of the channel. This reduces the velocity of runoff, which allows sediment to settle and reduces erosion.
- **Sediment Traps.** Sediment traps shall be constructed where sediment-laden runoff may enter the stormwater drainage systems or creeks. Sediment traps are appropriate for drainage areas less than 5 acres.
- **Sediment Basins.** If used on-site, sediment basins shall be designed according to the method provided in the California Stormwater Quality Association Stormwater BMP Handbook—Construction. Sediment basins are appropriate for drainage areas of 5 acres or greater.

Wind Erosion Control BMPs

- **Dust Control.** Potable water shall be applied using water trucks to alleviate nuisance caused by dust. Water application rates shall be minimized to prevent erosion and runoff.
- **Stockpile Management.** Silt fences shall be used around the perimeter of stockpiles, and stockpiles shall be covered to prevent wind dispersal of sediment.

Tracking Controls

- **Stabilized Construction Entrance/Exit.** Construction site entrances and exits shall be graded and stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.
- **Stabilized Construction Roadway.** Access roads, parking areas, and other on-site vehicle transportation routes shall be stabilized immediately after grading is completed, and frequently maintained to prevent erosion and to control dust.
- **Tire Wash.** A tire washing facility shall be installed at stabilized construction access points to allow for tire washing when vehicles exit the site to prevent tracking of dirt and mud onto public roads.

Non-Stormwater Controls

- **Illicit Connection/Discharge Detection and Reporting.** Contractors shall regularly inspect the site for evidence of illicit connections, illegal dumping, or discharges. Such illicit activities shall immediately be reported to the City.
- **Vehicle and Equipment Cleaning.** Construction equipment shall be washed regularly in a designated stabilized area on-site, or off-site. Steam cleaning will not be performed on-site. Phosphate-free, biodegradable soaps shall be used for on-site activities. Wash water from on-site activities shall be contained and infiltrated, to avoid discharges to drain inlets and the river.
- **Vehicle and Equipment Fueling and Maintenance.** Vehicles and equipment shall be inspected daily for leaks. Perform vehicle maintenance and fueling off-site whenever possible. If maintenance and fueling must take place on-site, designated areas shall be located at least 50 feet away from storm drain inlets, drainage courses, and receiving waters. Fueling areas shall be protected with berms and dikes to prevent runon, runoff, and to contain spills. Fueling shall be performed on level grade. Nozzles shall be equipped with automatic shutoffs to control drips. Stored fuel shall be enclosed or covered. Drip pans shall be used for all vehicle and equipment maintenance activities. Spill kits shall be available in maintenance and fueling areas, and spills shall be removed with absorbent materials and not washed down with water. If spills or leaks occur, contaminated soil and cleanup materials shall be properly disposed.
- **Paving and Grinding Operations.** Proper practices shall be implemented to prevent run-on and runoff, and to properly dispose of waste. Paving and grinding activities shall be avoided during the rainy season, when feasible.

Waste Management and Materials Pollution Controls

- **Material Delivery and Storage and Use.** Materials such as detergents, concrete compounds, petroleum products and hazardous materials shall be stored in a designated area away from vehicular traffic and drain inlets. The materials shall be stored on pallets with secondary containment. Spill clean-up materials, material safety data sheets, a material inventory, and emergency contact numbers shall be maintained in the storage area.
- **Spill Prevention and Control.** Proper procedures shall be implemented to contain and clean-up spills and prevent material discharges into the storm drain system.
- **Waste Management.** Solid waste shall be collected in designated areas, and stored in watertight containers located in a covered area or with secondary containment. Waste shall be removed from the site regularly. Hazardous wastes shall be stored and disposed in accordance with applicable regulatory requirements.
- **Sanitary/Septic Waste Management.** Portable toilets shall be located at least 50 feet away from drain inlets and waterbodies, and away from paved areas.
- **Stockpile Management.** Stockpiles shall be surrounded by sediment controls, covered, and located at least 50 feet from concentrated flows of stormwater and inlets.
- **Concrete Waste Management.** Concrete washout shall be performed off-site, or in a designated area at least 50 feet away from storm drain inlets. A temporary pit or bermed area shall be constructed where the waste can be discharged and allowed to set for proper disposal.
- **Training.** Construction site personnel shall receive training on implementing all BMPs included in the SWPPP. A Qualified SWPPP Practitioner shall perform all BMP inspection/maintenance/repair and site monitoring activities.

  Implementation of the above measures which require preparation and implementation of a site-specific SWPPP in accordance with the Construction General Permit, would reduce the adverse impacts to water quality associated with discharges of construction site runoff to a less-than-significant level. (LTS)

Impact HYD-2: Operational period activities at the project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of the Napa River and downstream receiving waters. (S)

The proposed project includes roadways, driveways, and landscaping, which are potential sources of various stormwater pollutants, such as sediment, metals, pesticides, petroleum hydrocarbons, nutrients, and trash and debris. Such pollutants may also be present in non-stormwater discharges, such as runoff from irrigation and maintenance activities. If not properly controlled, the discharge of these pollutants into receiving waters could adversely affect water quality and beneficial uses.

Mitigation Measure HYD-2: In accordance with the State Water Resources Control Board Low Impact Development Policy and the Phase II General Permit, the project applicant shall prepare and implement a Storm Water Management Plan to control pollutants in post-construction stormwater runoff and non-stormwater discharges, which shall be submitted for review with the building permit application to the City of St Helena and shall be approved prior to building permit issuance. The Storm Water Management Plan shall be prepared under the direction of a licensed professional registered in the state of California. At a minimum, the Storm Water Management Plan should include the following elements:

- An inventory of existing natural hydrologic features and significant natural resources.
- A description of the existing and proposed site drainage network and connections to drainage off-site.
- A division of the site into separate drainage areas, and an inventory of the current and proposed impervious surfaces in each area.
- A description of the treatment option for each drainage area. LID elements shall be used for the treatment of all stormwater runoff before it leaves the project site.
- Preliminary design, including calculations, for infiltration, treatment, or flow-control facilities, demonstrating their adequacy.
- An inventory of potential contaminant sources and strategies for the protection of storm water quality to the maximum extent practicable.
- A draft Operations and Maintenance plan, including a description of maintenance requirements, personnel assigned to that maintenance, and the establishment of a means for which the Operations and Maintenance Plan will be funded and implemented in perpetuity.

The Storm Water Control Plan should also document the incorporation of LID elements in the project design. LID elements should include the following strategies, as appropriate:

Reducing Impervious Area

- Reduction of street width to the minimum necessary, while ensuring emergency vehicle access and traffic flow.
- Reduction of parking footprints by keeping spaces to the minimum required and encouraging transit.
- Elimination of unnecessary sidewalks and driveways.

Development Siting and Layout

- Fitting the design to existing drainage patterns to maximize benefits of the existing terrain.
- Clustering development to maximize contiguous open space.

Using Natural Drainage Systems

- Disconnecting impervious areas from the storm drainage system and using vegetation, soil amendment, and deep tiling to increase infiltration.
- Minimizing grading to preserve natural small dips, hummocks, and mounds in undisturbed areas.
- Using swales and other landscaping to reduce runoff velocity.

Prior to final sign off of the building permit, the project applicant shall enter into a formal stormwater operation and maintenance agreement with the City. Unless otherwise required by the City, the agreement shall provide that: (1) the responsible party shall inspect the stormwater treatment facilities twice per year, once in the fall prior to the start of the rainy season, and once in the winter; and (2) on or before April 1 of each year, the party responsible for maintenance shall provide the City with records of all BMP inspections and maintenance.

Implementation of the above mitigation measures, which require the project applicant to implement specific post-construction controls in accordance with the State Low Impact Development Policy, and to submit a Storm Water Management Plan to the City with the building plans, would reduce adverse impacts associated with post-construction stormwater runoff to a less-than-significant level. (LTS)

Impact HYD-3: The proposed project could result in development within the 100-year flood hazard zone and increase flood inundation depths at and away from the site. (S)

Based on the current FEMA FIRM, the eastern portion of the project site is located within the 100-year flood hazard area. The project proposes to construct housing within this area. In accordance with the requirements of Municipal Code Chapter 15.52, any homes built within a FEMA 100-year flood hazard zone shall

be constructed so that the lowest floor elevation is a minimum of 18 inches above the current FEMA base flood elevations.

FEMA has already issued a conditional letter stating that the Flood Protection Project, as designed, would meet the minimum floodplain management criteria (i.e., the Flood Protection Project design is acceptable to FEMA). As such, FEMA's issuance of a revised FIRM, which may remove the project site from the 100-year flood hazard area, is expected to be completed in the near future. However, FEMA has not yet issued a final Letter of Map Revision and so the eastern portion of the project remains within the 100-year flood hazard zone. If fill is placed within this area, it could displace floodplain storage capacity and increase flooding hazards at and away from the site. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure HYD-3: In accordance with the requirements of Municipal Code Chapter 15.52, any homes built within a FEMA 100-year flood hazard zone shall be constructed so that the lowest floor elevation is a minimum of 18 inches above the current FEMA base flood elevations. The applicant shall prepare grading plans and construction specifications that demonstrate that any homes proposed to be constructed within the current FEMA 100-year hazard zone are elevated so that the lowest floor is 18 inches above the base flood elevation (i.e., the elevation of the 100-year flood). During construction, these elevations shall be confirmed by a licensed land surveyor and documentation, signed and stamped by the land surveyor, submitted to the City prior to issuance of occupancy permits.
>
> In addition, if the project places fill within a FEMA 100-year flood hazard area, engineering hydraulic analysis must be completed that demonstrates that placement of fill would not increase flood inundation depths at or away from the project site. Documentation of this analysis shall be submitted to the City for review and approval prior to issuance of grading and/or building permits. (LTS)

Impact HYD-4: Flooding associated with a levee breech or overtopping could endanger residents and improvements. (S)

As described above in subsection 1.c.(1), the recently completed Flood Protection Project included construction of a levee and floodwall between the project site and the Napa River. This Flood Protection Project has been designed to substantially modify the extent of the 100-year flood hazard area and protect existing development in east St. Helena from damaging flood events. If the levee system is recognized by FEMA,[30] the Flood Protection Project will also effectively

[30] A professional engineer or federal agency (associated with the levee owner or sponsor) must first ***certify*** that a levee meets FEMA standards (44 CFR 65.10). After FEMA

remove the project site from the 100-year flood hazard area. The project proposes to construct housing in an area protected from flooding by this new levee. If the levee were to fail catastrophically during a major discharge event in the Napa River, it is likely that at least a portion of the proposed development would be flooded, endangering residents and damaging property. As stated by FEMA, "Levees reduce the risk of flooding. They do not eliminate it. For example, if a flood larger than the designed level of risk reduction occurs, there will likely be widespread flooding. Over time if levees are not maintained properly, their ability to reduce risk decreases due to deterioration. Improper drainage, erosion, seepage, subsidence, and even earthquakes can cause levees to fail and result in catastrophic flooding. In fact, the flood damage can be greater than if the levee had not been built."[31]

The CEQA significance criterion that addresses potential impacts related to levee failure states that a significant impact (under CEQA) would occur if the project would:

> *Expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.*

Therefore, to determine the significance of this potential impact, it must be determined whether the risk of loss, injury, or death associated with levee failure is substantial. The risk evaluation must consider 1) the probability that the levee will fail, and 2) the consequences if failure were to occur (i.e., would there be a significant property loss, injuries, and/or deaths). Overtopping of the levee, while not specifically identified as a factor in the significance criterion, could indirectly contribute to levee failure.

Risk of Levee Failure. Levees can fail in several ways, including internal erosion, slides within the levee embankment, erosion/surface damage, and overtopping. Internal erosion can lead to accelerated rates of seepage through the levee, in some cases eroding material as the seepage moves. If this accelerated seepage discharges on the landside of the levee, a sand boil can occur. Sand boils on the landside levee face (or other causes of instability) can lead to undermining and slope failures. If a levee is overtopped, the flood water flowing over the levee crest can have a high level of erosive power, potentially downcutting into the levee, ultimately creating a breach. The maximum height of the levee relative to the surrounding ground surface elevation occurs near where the levee meets the floodwall. At this location, the top of the levee is approximately 14 feet higher

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determines that the certification information is acceptable, FEMA ***recognizes*** (or accredits) on FEMA maps that the levee system provides protection from the base flood.

[31] FEMA, 2012. Living with Levees: It's a Shared Responsibility, website viewed 5/1/12: http://www.fema.gov/plan/prevent/fhm/lv_state.shtm.

than the adjacent ground surface (at Terrace B).[32] Since the levee was designed and constructed to have 3 feet of freeboard during a 200-year flood event, the vertical water height at the levee should be approximately 11 feet during a 200-year flood event. This retained water would exert pressure on the levee. In addition, if a flood event substantially larger than the 200-year flood occurred, the levees could be overtopped, which could contribute to levee failure.

Modern engineered levees are designed and constructed to address potential levee failure scenarios. The Flood Protection Project was constructed with a levee keyway[33] and an inspection trench excavation to ensure that the foundation materials underlying the levee had appropriate geotechnical properties and that the levee was anchored into the existing stratigraphy. Materials used to construct the levee itself were inspected by a geotechnical engineer, laid down in thin lifts (i.e. thin layers of fill material), and compacted according to approved design specifications. The design and construction inspection of the levee was completed by qualified consulting and public agency engineers. In accordance with federal law (44 CFR 65.10), in order for a levee to be recognized by FEMA, it must be demonstrated that it meets the following:

- **Design Criteria.** Evidence must be submitted that adequate design, operation, and maintenance systems are in place to provide reasonable assurance that protection from the 100-year flood is provided.
- **Freeboard.** Levees must provide 3 feet of freeboard above the 100-year flood elevation.
- **Embankment Protection**. Engineering analysis must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the 100-year flood.
- **Embankment and Foundation Stability**. Engineering analysis must be submitted that demonstrate levee stability during flooding conditions.
- **Settlement.** Engineering analysis must be submitted that demonstrate that any future settlement will not result in reduction of the required freeboard.
- **Interior Drainage.** Engineering analysis must be submitted to demonstrate that the internal drainage system for the levee meets FEMA criteria, which include a flood warning system, operation plan, manual backup, and periodic inspection.
- **Operation and Maintenance Plan.** For a levee system to be recognized by FEMA, the levee system must be operated and maintained in accordance with FEMA criteria under an officially adopted plan.

[32] City of St. Helena, 2011. Comprehensive Flood Protection Project, Napa River and Sulphur Creek, As-Built Specifications.

[33] A "keyway" is an excavated trench into competent earth material beneath the toe of a proposed fill slope.

The City has submitted supporting documentation to FEMA that addresses the above criteria as part of the LOMR process. This documentation includes an Operations and Maintenance Manual.[34] In addition, the stability of the levee design was analyzed and found to be stable under a variety of conditions.[35] However, the report did identify one scenario where instability could occur in the banks of the detention basin:

> "…if steady state seepage conduction were to occur during the 14-hour duration of the peak flood above the existing ground surface elevation and the detention basin were empty, which is unlikely, the inboard slope of the basin could fail. Since the detention basin is offset from the levee, it is unlikely that the failure would progress into the levee section and result in a loss of freeboard." (Page 6).

Based on the distance of the detention basin from the levee, it was determined that a failure (small landslide) within the detention basin would not adversely affect the levee, and therefore this hypothetical failure would not compromise the levee's flood protection.

The Flood Protection Project levee system is designed to provide protection for the 200-year flood event (under CEQA, the criteria for flood protection is the 100-year event) with 3 feet of freeboard. However, FEMA, which is currently reviewing the final submittal of as-built specifications, has not yet recognized the levee. Recognition of the levee system by FEMA is a critical step in the process of risk evaluation. Without FEMA recognition, it cannot be ascertained with certainty that the City has adequately addressed all the levee safety criteria described above. Therefore, placement of homes in an area that is "protected" by a levee not yet recognized by FEMA represents a substantial risk and is a significant impact.

Consequences of Levee Failure. As stated by FEMA, "the flood damage [related to failure of a levee] can be greater than if the levee had not been built."[36] Greater damage can occur when levees fail because water levels build up behind the levee and, if failure occurs quickly, can release a large volume of potentially destructive water in a short period of time. At the same location, if no levee was present, the flood waters would be more likely to rise slowly with less destructive power and allowing more time for evacuation.

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[34] Mead and Hunt, 2011. Operations and Maintenance Manual for the St. Helena Comprehensive Flood Protection Project.

[35] Kleinfelder, 2006. Draft Supporting Data, FEMA Riverine Structure Form, St. Helena Flood Protection Project, St Helena, California.

[36] FEMA, 2012. Living with Levees: It's a Shared Responsibility, website viewed 5/1/12: http://www.fema.gov/plan/prevent/fhm/lv_state.shtm.

In the case of the Flood Protection Project, the maximum levee height relative to the ground surface on the landward side of the levee is approximately 8 feet. Since the levee is designed to have 3 feet of freeboard, there would be 5 feet of water being held back by the levee during the 200-year flood event (relative to the elevation of the landward side ground surface). If released during a levee failure, this water would have potentially destructive power and could damage homes at the project site, particularly on proposed building lots 22 through 29. On the project site, flood water that breaches the levee would spread out quickly after passing this first row of building lots and crossing over the proposed street. In summary, a catastrophic levee failure could cause property loss and potentially injuries for the first row of homes, and additional property loss (but no injuries likely) for the remaining portions of the proposed development, as the areas away from the location of the levee failure inundation depths would likely be shallow and eventually dissipate completely. It is expected that the area of inundation would be approximately the same as that depicted on the current (pre-Flood Control Project) 100-year flood hazard zone.

When determining levels of protection and what risks are acceptable, FEMA recommends the general scope and nature of the impact on residents, businesses, and critical infrastructure be considered if a levee failure were to occur. For the proposed project, only a relatively small number of residences would be impacted; no businesses or critical infrastructure would be affected. Nonetheless, even though the potential for levee failure is remote, the consequences would be significant, and therefore the potential property loss and injuries to residents related to potential levee failure is a significant impact. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-4: Based on consultation with the City and to provide an additional level of protection for the residences constructed behind the levee:

1) All residences located within the existing FEMA 100-year flood hazard zone (the pre-Flood Control Project floodplain) shall be constructed so that the lowest floor elevation is a minimum of 18 inches above the pre-Flood Control Project base flood elevations. The applicant shall prepare grading plans and construction specifications that demonstrate that any homes proposed to be constructed within the pre-Flood Control Project 100-year hazard zone are elevated so that the lowest floor is 18 inches above the base flood elevation (i.e., the elevation of the 100-year flood). During construction, these elevations shall be confirmed by a licensed land surveyor and documentation, signed and stamped by the land surveyor, submitted to the City prior to issuance of occupancy permits.

2) To address levee failure, an engineering analysis performed by a qualified professional engineer shall be prepared that demonstrates that those

portions of the project site within the pre-Flood Control Project floodplain would not be inundated during a worst-case levee failure scenario. The analysis shall be reviewed by the City and only those portions of the pre-Flood Control project floodplain that are not at risk of damage from a levee failure may be issued building permits.

In addition, the project sponsor shall:

- Formally notify potential purchasers and residents (if renters) about the residual risk they face and the level of protection they are being provided (e.g. place informative signs in the area, issue informational fact-sheets, etc.). In addition, home purchasers shall be provided disclosure prior to finalizing a home purchase to this effect. Prospective rental tenants shall also receive notification.
- In accordance with the Operations and Maintenance Plan, prepare an evacuation plan and inform all project residents of the procedures contained in the plan;
- In accordance with the Operations and Maintenance Plan, alert the community residents when a potential flood situation is developing to give them advance warning so that they can take action to minimize potential damage. (LTS)

J. NOISE AND VIBRATION

The information includes a description of noise and vibration terminology, the current noise setting near the proposed project site, relevant guidance or rules for evaluating and regulating noise and vibration, and a noise and vibration impact assessment for the proposed project. Potential impacts assessed include temporary noise and vibration impacts during construction and the noise increase that could be expected due to increased traffic on the local roadways.

1. Setting

The following discussion provides a summary of the relevant existing noise and vibration environment and regulations.

a. Noise and Vibration Terminology

The definitions of and terms associated with noise and vibration are described below.

(1) Noise

Noise is commonly defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. The effects of noise on people can be grouped into three general categories: 1) subjective effects of annoyance, nuisance, and dissatisfaction; 2) interference with such activities as speech and sleeping; and 3) physiological effects, such as hearing loss.

Sound is measured in decibels (dB), which is a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but they cannot accurately describe sound as perceived by the human ear since the human ear is only capable of hearing sound within a limited frequency range. Therefore, the frequency of a sound must be taken into account when evaluating the potential human response to sound. For this reason, a frequency-dependent weighting system is used and the results reported in A-weighted decibels (dBA). Decibels and other technical terms are defined in Table IV.J-1.

In unconfined space, such as outdoors, noise attenuates with distance according to the inverse square law. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces, such as cement or asphalt surfaces, and 7.5 dBA for every doubling of distance for soft surfaces, such as undeveloped or vegetative surfaces.[1] Noise levels at a known distance from line sources theoretically decrease at a rate of 3 dBA for

[1] California Department of Transportation, 1998. Technical Noise Supplement, A Technical Supplement to the Traffic Noise Analysis Protocol.

TABLE IV.J-1 DEFINITION OF ACOUSTICAL TERMS

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of two like quantities
Sound Pressure Level (SPL)	10 times the logarithm to the base 10 of the ratio between the square of the sound to the square of the reference sound pressure of 20 μPascals. Sound pressure level is the quantity that is directly measured by a sound level meter and expressed in dB.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz.
A-Weighted Sound Level (dBA)	SPL in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes low and high frequency components of frequency components of sound in a manner similar to the frequency response of the human ear and correlates well with subjective response to sound. All sound levels in this report are A-weighted.
Noise	Unwanted sound.
Equivalent Noise Level (Leq)	The average A-weighted sound level during the measurement period. For this CEQA evaluation, Leq refers to a one-hour period unless otherwise stated.
Lmax, Lmin	The maximum and minimum A-weighted sound level during the measurement period.
L01, L10, L50, L90	The A-weighted sound levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured during the night between 10 pm and 7 am.
Community Noise Equivalent Level (CNEL)	The average A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7 p.m. to 10 p.m. and after addition of 10 decibels to sound levels during the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Impulsive Noise	Noise loud enough to disrupt normal activities and usually lasting less than one second.

Source: St. Helena General Plan Update Draft PEIR, 2010; 1993 St. Helena General Plan.

every doubling of the distance for hard surfaces and 4.5 dBA for every doubling of distance for soft surfaces.[2] Greater decreases in noise levels can result from the presence of intervening structures or buffers. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table IV.J-2.

An important method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:

- A change of 1 dBA cannot typically be perceived, except in carefully controlled laboratory experiments;
- A 3-dBA change is considered a just-perceivable difference;
- A minimum of 5-dBA change is required before any noticeable change in community response is expected;
- A 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness.

(2) Vibrations

Vibrating objects in contact with the ground radiate energy through the surface. If a vibrating object is massive enough and/or close enough to an observer, its vibrations are perceptible. Root mean square (RMS) value is used to describe vibration that is felt as motion. The RMS velocity level is a measure of the energy contained in the vibration and is directly related to human perceptibility and to sound radiation by building components and is normally measured in inches per second (in/sec). For a typical event, measurements are expressed in terms of the maximum RMS vibration velocity level. RMS may be expressed in decibel notation as Lv in units of micro-inches per second.

b. Local Noise Environment

The local noise environment including sensitive receptors and existing noise conditions is described below.

(1) Sensitive Receptors

Potential noise sensitive receptors are identified based on land uses where noise-sensitive people may be present or where noise-sensitive activities may occur. Areas with sensitive receptors may require special consideration to achieve protection from excessive noise. Noise-sensitive land uses include residences, schools, hospitals, and retirement homes. Noise-sensitive activities are those that occur in locations such as churches, libraries, and recreational areas.

[2] Ibid.

TABLE IV.J-2 TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

Noise Source (Distance in Feet)	A-Weighted Sound Level in Decibels (dBA)
Jet Takeoff (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42
Vacuum Cleaner (10)	60

Source: Salter, Charles M., 1998, Acoustics, Architecture, Engineering, the Environment.

The area surrounding the proposed project is a mix of agricultural, residential, commercial offices, and open space. Residential properties are located adjacent to the south, southeast, and west of the proposed project. Commercial offices are located adjacent to the site's most southern edge at the terminus of Adams Street and a preschool is located along Adams Street, just beyond the office buildings.

The residences and commercial offices are located within 25 to 50 feet of the proposed project boundaries. The preschool is located approximately 300 feet from the beginning of the Adams Street extension and just over 1,000 feet from the proposed residential construction site.

(2) Current Noise Environment

The ambient noise environment in the City of St. Helena can be characterized as being that of a quiet semi-rural setting. The following description of the ambient noise environment in St. Helena is based on the description provided in the St. Helena General Plan Update Draft Preliminary Environmental Impact Report.[3]

The ambient noise environment in the City of St. Helena is notable for being extremely quiet, especially in the evenings and at nighttime. Residential areas away from collector streets are shielded from highway and collector noise and register very low background noise levels typically in the range of 20 to 25 dBA or below during evening and nighttime hours. Except within close proximity to Main Street/State Route (SR) 29 and major collector roadways, the noise environment can be characterized as being that of a quiet rural setting.
The ambient noise environment is predominantly the result of transportation-related noise sources. Main Street/SR 29 traffic noise is the highest in the

[3] St. Helena General Plan Update Draft PEIR, 2010, pages 4.E-8 and 4.E-10.

community. Major collector roadways, including Silverado Trail, Deer Park Road, and Pope Street, are also significant sources of traffic noise at land uses adjoining these roadways. Noise sources that are intermittent and generally inconsequential to the noise environment are commercial aircraft at high altitudes, and small general aviation and helicopter overhead flights. The Wine Train has an average of two round trips through St. Helena per day and emits a loud horn at street crossings along with the low frequency rumble of the diesel engines. Gravel processing operations at Harold Smith and Son, Inc. along Sulphur Creek also contribute to ambient noise levels at receivers in the vicinity.

Intermittent noises that are typical in St. Helena include those related to agricultural activities, street sweeping and garbage/recycling pickup in the early morning, and emergency sirens. High noise levels are generated by wind machines used for agriculture in the early spring, with noise levels of approximately 90 dBA at nearby residential receptors at the same time that background noise levels are in the low-20 dBA range. Tractors and sulphur blowers that are employed in the vineyards in the early hours of the morning create other agricultural-related noise. The city has sirens at two locations associated with the Fire Department. The sirens sound on an average of two to three times per day, with approximately half of these soundings occurring during nighttime hours.

Noise levels along roads in residential areas peak between 7:00 a.m. and 9:00 a.m. (66 to 68 dBA Leq), gradually decrease throughout the day, range from 52 to 57 dBA Leq in the evening, and then fall below 50 dBA Leq at night. Day-night average noise levels are typically less than 60 dBA Ldn at a distance of 75 feet from the residential roadway centerlines.

c. Regulatory Setting

Airborne noise standards applicable to this project are promulgated by the State of California and by local community noise ordinances and general plans. The State of California provides guidance for preparation of noise elements in general plans and noise insulation standards for buildings. The City of St. Helena Municipal Code contains the local regulations pertaining to noise.

(1) State Regulations

State regulations relevant to noise are described below.

California Noise Control Act. Sections 46000 to 46080 of the California Health and Safety Code codify the California Noise Control Act (CNCA) of 1973. This act established the Office of Noise Control under the California Department of Health Services. The CNCA required that the Office of Noise Control adopt, in coordination with the Office of Planning and Research, guidelines for the preparation and content of noise elements for general plans. The most recent guidelines are contained in General Plan Guidelines, published by the California

Office of Planning and Research in 2003. The document provides guidelines for cities and counties to use in their general plans to reduce conflicts between land use and noise. The guidelines provide suggested acceptable ranges for land use and noise compatibility.

The guidelines indicate that, for a low-density single-family residential area in an urban residential community not adjacent to heavily traveled roads and industrial areas, a CNEL of 50 to 60 dBA would be normally acceptable and a CNEL of 60 to 70 dBA would be conditionally acceptable. For multi-family residential developments, a CNEL of 50 to 65 dBA would be normally acceptable and a CNEL of 60 to 70 dBA would be conditionally acceptable. The guidance states that for new developments where the ambient noise level is conditional acceptable, a detailed analysis of the noise reduction requirements should be made and needed noise insulation features included in the project design.

State of California Noise Insulation Standards. Title 24, Part 2 of the California Code of Regulations (CCR) codifies Sound Transmission Control requirements, which establish uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings, other than detached single-family dwellings. Specifically, Title 24 states that interior noise levels attributable to exterior sources shall not exceed 45 dBA (CNEL or Ldn) in any habitable room of new dwellings. Dwellings are to be designed so that interior noise levels will meet this standard for at least ten years from the time of building permit application.

(2) St. Helena Municipal Code

The St. Helena Municipal Code does not quantitatively regulate noise levels, but states in Chapter 8.24 of Title 8, the Health and Safety Code, that " unnecessary noise which can be heard outside of any building by attaching any noise-producing attachment to any vehicle; or blowing or ringing any horn, whistle or bell; by operating a loudspeaker, public address system or sound amplification system; or by making any other loud or unusual noise which disturbs the peace of any other person" would violate the ordinance unless permitted by the chief of police. Similarly, noise generated by commercial activities between the hours of 10:00 p.m. and 7:00 a.m. that can be heard at the property line of any parcel is prohibited, unless permitted by the chief of police.

Construction activities are limited to the hours between 8:00 a.m. and 5:00 p.m. Monday through Saturday. Construction is not allowed on Sundays and holidays (federal and local) if noise can be heard at the property line of any parcel of real property within the city limits.

Delivery of materials/equipment and cleaning and servicing of machines/ equipment are limited to between 7:00 a.m. and 6:00 p.m.

(3) Existing 1993 General Plan

The existing 1993 General Plan has the following guiding and implementing policies that may apply to the project:

PUBLIC HEALTH, SAFETY, AND NOISE
NOISE
POLICY 8.3.1 Maintain a city-wide noise environment that balances various City objectives while minimizing the impact of highway, railroad, and industrial noise on the public, while recognizing the agricultural basis of the community.
POLICY 8.3.2 Discourage noise-sensitive land uses from locating in areas with inappropriate or high noise levels based on the land use compatibility guidelines, interior noise level criteria, and the noise contour maps.
POLICY 8.3.3 Require new residential developments to implement noise mitigation measures when built in close proximity to noise sources such as Highway 29, the railroad tracks, and the Harold Smith & Sons gravel quarry. These developments should consider the resulting exterior as well as interior noise environment.
IMPLEMENTING POLICY 8.3.5 Continue to consider the environmental impact of transportation-related noise and other noise sources in the review and approval of subdivision plans and requests for changes in the zoning ordinance.
IMPLEMENTING POLICY 8.3.5 Require construction operations to use noise suppression devices and techniques and limit noisy construction activities to the least noise sensitive times (8 am to 5 pm, Monday through Friday).

In addition to the implementing policies, the 1993 General Plan established land use compatibility guidelines as summarized in Table IV.J-3 and methodology for determining noise impacts from intrusive noise.

The 1993 General Plan states the 10-minute Leq should be the noise level descriptor used to determine the impact of intrusive, continuous or intermittent noise. The 10-minute Leq of the noise source of concern shall be compared with a representative 10-minute Leq of the ambient noise. Measurements are to be taken at the nearest receiver property line or at the nearest affected exterior location which is deemed appropriate. Once the 10-minute Leq of the potentially intrusive source is determined, it shall be corrected as indicated in Table IV.J-4.

If, after the corrections are made, the potentially intrusive noise source would cause the exterior noise levels at the receiver position to exceed the measured ambient noise levels by more than 5 dBA, mitigation measures shall be developed to reduce the projected noise increase to be less than 5 dBA above ambient levels. In addition to the above, the Lmax of any impulsive noise shall not exceed the ambient by more than 10 BA.

TABLE IV.J-3 NOISE/LAND USE COMPATIBILITY GUIDELINES

	Community Noise Exposure (dBA, Ldn or CNEL)			
Land Use Category	**Completely Compatible[a]**	**Tentatively Compatible[b]**	**Normally Incompatible[c]**	**Completely Incompatible[d]**
Residential	less than 55	55 to 60	60 to 75	Greater than 75
Commercial/Office	less than 65	65 to 75	75 to 80	Greater than 80
Industrial/Agricultural	less than 70	70 to 80	80 to 85	Greater than 85
Public Use				
Schools, libraries, churches, hospitals	less than 65	65 to 70	70 to 80	greater than 80
Playground, neighborhood park	less than 67	67 to 70	70 to 75	greater than 75

[a] Completely Compatible: the noise exposure is such that both the indoor and outdoor environments are pleasant, as long as noise sources do not cause the ambient noise to increase more than 5 dBA, and in the absence of intrusive and intermittent noise.
[b] Tentatively Compatible: the noise exposure is great enough to be of concern, but common building construction practices will make the living indoor environment acceptable, even for sleeping quarters, and the outdoor environment will be reasonably pleasant for recreation and play.
[c] Normally Incompatible: the noise exposure is so severe that unusual and costly building construction is necessary to ensure some tranquility inside one's home, and barriers must be erected between the site and prominent noise sources to make the outdoor environment tolerable.
[d] Completely Incompatible: the noise exposure at the site is so severe that construction costs to make the indoor living environment acceptable would be prohibitive and the outdoor environment would still be intolerable.
Source: 1993 St. Helena General Plan.

TABLE IV.J-4 NOISE MEASUREMENT CORRECTIONS FOR INTRUSIVE OR INTERMITTENT NOISE

Type of Correction	Circumstances of Correction	Correction[a]
Seasonal	Summer or year around operation	0 dBA
	Winter Only (or windows always closed)	-5 dBA
Tone of Impulse Characteristics	No Pure Tone or Impulsive Character	0 dBA
	Pure Tones[b] Present	+5 dBA
	Impulsive Tones[c]	+5 dBA

[a] Correction to be added to the measured or predicted 10 minute L, of the potentially intrusive noise source.
[b] Tonal element exists when the 113 octave noise level of the tone is 5 dB greater than the average level of the two adjacent 1B octave noise bands.
[c] Repetitions of noise with a period of less than 2 seconds or for a series of events with a duration less than 2 seconds.
Source: 1993 St. Helena General Plan.

(4) Draft General Plan Update

The following implementing actions from the St. Helena General Plan Update 2030, Public Health, Safety, and Noise Element[4] are relevant to noise issues in the project area:

PUBLIC HEALTH, SAFETY, AND NOISE
Noise
IMPLEMENTING ACTION PS2.A Consider the environmental impact of transportation-related noise and other noise sources in the review of any new projects and approval of subdivision plans and requests for changes in the zoning ordinance.
IMPLEMENTING ACTION PS2.B Enforce the Land Use Compatibility Standards presented in the State of California's General Plan guidelines when siting new uses. These standards identify the acceptability of a project based on levels of noise exposure.
IMPLEMENTING ACTION PS2.C Enforce Title 24 Standards for all new residential construction. ▪ An interior maximum noise level of LAdn-45 dBA in all habitable rooms for all dwelling units; ▪ A maximum allowable interior noise level for bedrooms of an hourly LAeq-35 dBA; ▪ A maximum noise level of LAdn-60 dBA for residential exterior activity areas; ▪ If interior noise standards are met by requiring windows to be closed, cooling and outside air exchange must also be provided in the building's design.
IMPLEMENTING ACTION PS2.F Require construction operations to use noise suppression devices and techniques and limit noisy construction activities that can be heard at the property line to the least noise-sensitive times, as per the City's noise ordinance.
IMPLEMENTING ACTION PS2.G Include appropriate noise attenuation techniques in the design of all new arterial streets. Such techniques would include the use of site planning, building orientation, buffer distances and the use of correctly-engineered acoustical barriers and berms where necessary. Adopt the noise standard for intrusive noise at residences given in Table 9.5.

2. Impacts and Mitigation Measures

This section discusses potential impacts on the noise environment that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.J-5.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on the noise environment and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to noise and vibration and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

[4] City of St. Helena, 2010. *Draft General Plan Update EIR.*

TABLE IV.J-5 NOISE AND VIBRATION IMPACT SUMMARY

CEQA Significance Criteria	*EIR Findings*
▪ Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	LTS with Mitigation (see Impact NOISE-1 on page 262)
▪ Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	LTS (see page 260)
▪ Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	LTS (see page 259)
▪ Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	LTS with Mitigation (see Impact NOISE-1 on page 262)
▪ For a project located within an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Focused out in Initial Study (see page 259)
▪ For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	Focused out in Initial Study (see page 259)

Source: Urban Planning Partners, 2012.

(1) CEQA Significance Criteria

Implementation of the proposed General Plan would have a potentially significant impact if it would:

- 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;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project and in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

- For 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, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study determined that the project would have no impact with regard to the following criteria related to noise impacts:

- For 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, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

As a result, no further discussion of these criteria is provided in this EIR.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A scoping summary of comments received is included in Appendix A of this document.

Comments concerning noise were related to cumulative impacts from the project. These have been discussed in Chapter VI: CEQA Required Assessment Conclusions and Cumulative Impacts of this EIR.

b. Less-than-Significant Noise and Vibration Impacts

The following discussion describes the less-than-significant impacts associated with noise and vibration that would result from the proposed project.

(1) Noise Levels

Implementation of the proposed project would result in long term ambient noise level increases due to increased vehicle traffic. Increases in traffic noise gradually degrade the environment in areas sensitive to noise. An increase of 5 dBA Ldn or more is considered substantial in noise-sensitive areas along roadways would be considered a significant impact in accordance with St. Helena's 1993 General Plan.

The traffic study prepared for the proposed project estimated the project would result in a small increase in traffic on the project's two access roadways, Adams Street and Starr Avenue. The peak hourly traffic volumes on Adams Street and Starr Avenue were used to estimate the noise impact with the Federal Highway Administration's Traffic Noise Model. The results are summarized in Table IV.J-6.

This modeling indicated that during peak hour traffic, the noise from vehicles traveling on Adams Street and Starr Avenue would not increase the noise level over 5 dBA. Therefore, noise impact from traffic noise along the project access roads would be less than significant and would not expose people to noise levels in excess of established standards.

Aside from traffic-related noise, once complete, the proposed project would not result in any other significant changes to the noise environment. Project construction would also generate noise levels that may exceed applicable noise standards (see Impact NOISE-1 below).

(2) Groundborne Noise and Vibration during Construction from Earthmoving Equipment

The City of St. Helena does not have specific ordinances pertaining to groundborne vibration. The U.S. Bureau of Mines provides vibration thresholds in in/sec peak particle velocity to limit structural damage of buildings. In contrast to airborne noise, groundborne vibration is not a common environmental problem.[5] It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving and operating heavy earth-moving equipment.

Grading activities could potentially cause vibration that could disturb local residents. Vibration is energy transmitted in waves through the ground, which generally dissipate with distance from the vibration source. Since energy is lost during the transfer of energy from one particle to another, vibration that is distant from a source is less perceptible than vibration closer to the source. Construction activities can result in varying degrees of ground vibration, depending on the equipment, activity, and relative proximity to sensitive receptors. Ground vibration from construction activities can achieve levels that are audible (i.e., groundborne noise) in buildings very close to operating heavy construction equipment. Groundborne noise in buildings is generated when interior surfaces are "excited" into motion by ground vibration transmitted into the structure. For example, ground vibration could cause windows to rattle.

[5] Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment* (DTA-VA-90-1003-06).

TABLE IV.J-6 ESTIMATED TRAFFIC NOISE LEVELS AT 50 FEET FROM ROADWAY CENTERLINE

Roadway	Peak Hour Traffic Volume	1-Hour Leq dBA
Adams Street		
Existing Conditions	169	50.8
Existing plus Project	191	51.4
Year 2030 without Project	184	51.2
Year 2030 plus Project	206	51.7
Starr Avenue		
Existing Conditions	158	50.5
Existing plus Project	210	51.8
Year 2030 without Project	257	52.7
Year 2030 plus Project	309	53.5

Source: BASELINE Environmental Consulting, 2012.

The FTA provides vibration impact criteria for assessing vibration impacts for residential receptors, depending on the frequency of the vibration impact, which are summarized in Table IV.J-7.

The vibration levels for various pieces of earthmoving equipment that could be used at the proposed project site are summarized in Table IV.J-8. Although the table gives one level for each piece of equipment, it should be noted that there is a considerable variation in reported ground vibration levels from construction activities, primarily due to variation in soil characteristics.

The vibration associated with the larger types of earthmoving equipment that could be used at the proposed project site would be considered infrequent events since the equipment would be moving within the proposed project site, the amount of time that large construction equipment would operate in near to the existing homes would be limited. The vibration may exceed vibration impact criteria where the nearest residential receptor is located closer than 50 to 75 feet from where the equipment is being operated. However, the vibration would not only be infrequent, but temporary since grading and compacting soil within 50 to 75 feet of the nearest residents would not be expected to last more than a few days. In addition, St. Helena's Municipal Code limits construction activities to the hours between 8:00 a.m. and 5:00 p.m. Monday through Saturday restricting any impact to normal daytime hours, reducing the likelihood of disturbance as would be likely during nighttime hours. Therefore, this potential impact is considered less than significant.

TABLE IV.J-7 GROUNDBORNE VIBRATION IMPACT CRITERIA

Frequent Events[a] (VdB)	Occasional Events[b] (VdB)	Infrequent Events[c] (VdB)
72	75	80

Note: VdB is vibration decibels in micro inches per second.
[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 kind per day.
Source: Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment*, (DTA-VA-90-1003-06).

TABLE IV.J-8 VIBRATION LEVELS OF EARTHWORKING EQUIPMENT

Equipment	VdB at 25 Feet (µin/sec)	VdB at 50 Feet (µin/sec)	VdB at 75 Feet (µin/sec)	VdB at 100 Feet (µin/sec)
Vibratory Roller	94	85	80	76
Large Bulldozer	87	78	73	69
Loaded Trucks	86	77	72	68
Small Bulldozer	58	49	44	40

Notes: Vibration levels for construction equipment at 25 feet are based on measured data near various types of equipment. The following propagation adjustment was applied to estimate vibration levels at 50, 75, and 100 feet:

Lv (D) = Lv(25 ft) – 30 log (D/25)

where:·

Lv is the RMS velocity in decibels (µin/sec) of the equipment adjusted for distance.

D is the distance from the equipment to the receiver.

µin/sec is micro-inches per second.

Source: Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment* (DTA-VA-90-1003-06).

c. Significant Noise and Vibration Impacts

One significant impact relevant to an increase in noise would result from project implementation.

<u>Impact NOISE-1</u>: The proposed project would result in a temporary increase above ambient noise levels in the project vicinity during the construction phase. (S)

For the purposes of this evaluation, construction noise impacts would be considered significant if 1) the construction noise exceeds the tentatively compatible Community Noise Exposure value of 60 CNEL or Ldn value of 60 dBA

or exceeded ambient noise levels by 5 dBA Leq or 10 dBA Leq for impulsive noise, as established in the 1993 General Plan (Table IV.J-3).

Construction activities would include grading, construction of the Adams Street and Starr Avenue extensions and interior roads, installation of utilities, landscaping, and building the residential units. Development of the Hunter Subdivision is expected to occur over a number of years. It is anticipated that the site improvements such as grading and installation of roads, water, sewer, telecommunication, electrical and natural gas lines, and landscape improvement for the project would be complete within 18 months after the approval of the project's entitlements, and on commencement of work. Buildout of the residential dwellings would be subject to the City's Growth Management System, which limits the issuance of non-income restricted residential building permits to nine units per year.

The primary construction related noise of concern is the short-term noise impact when grading, roadway construction, and installation of the utilities is conducted near existing residential or commercial property lines. Construction is performed in various distinct phases, each with its own mix of equipment, workers, and activities. Consequently, the construction activity performed in each phase has its own noise characteristics. The variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table IV.J-9 shows typical exterior noise levels at various phases of commercial construction, and Table IV.J-10 shows typical noise levels associated with various types of construction-related machinery.

Construction activities during the building phase of the proposed project would result in a temporary increase in ambient noise levels in the immediate vicinity. Equipment typically used for road building, site preparation, and infrastructure installation includes bulldozers, rippers, excavators, graders, tractors, backhoes, compactors, rollers, concrete trucks, loaders, and pick-up, dump, and water trucks. Construction-related noise levels during building framing, finishing, and landscaping phases are normally lower than those produced during road building, site preparation, and infrastructure installation. Table IV.J-11 summarizes the maximum estimated noise level from various types of construction activity at 100, 150, 200, and 300 feet.

The proposed project would be required to comply with the limitations on construction activity included the City of St. Helena Municipal Code limiting construction to the hours between 8:00 a.m. and 5:00 p.m. Monday through Saturday. Since the ambient noise level in St. Helena is in the range of 20 to 25 dBA or below during evening and nighttime hours, it is unlikely that the construction noise would result in the 24-hour CNEL or Ldn exceeding 60 dBA. However, even when restricted to the allowable construction hours, construction noise can still be a nuisance when conducted in proximity to sensitive receptors.

TABLE IV.J-9 TYPICAL NOISE LEVELS AT 50 FEET FROM CONSTRUCTION SITES (DBA LEQ)

	Domestic Housing		Public Works Roads and Highways, Sewers, and Trenches	
Activity	**All Pertinent Equipment Present at Site**	**Minimum Required Equipment Present at Site**	**All Pertinent Equipment Present at Site**	**Minimum Required Equipment Present at Site**
Ground Clearing	83	83	84	84
Excavation	88	75	88	78
Foundations	81	81	88	88
Erection	81	65	79	78
Finishing	88	72	84	84

Source: U.S. EPA, Legal Compilation, 1973.

TABLE IV.J-10 TYPICAL NOISE LEVELS AT 50 FEET FROM CONSTRUCTION EQUIPMENT (DBA)

Equipment	**Sound Level (dBA)**
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (truck)	85
Jackhammer	88
Scraper	88
Dozer	87
Paver	89
Generator	76
Pump	76
Pneumatic Tools	85
Backhoe	85

Source: Charles M. Salter, 1998. Acoustics, Architecture, Engineering, the Environment.

TABLE IV.J-11 ESTIMATED NOISE LEVELS FROM CONSTRUCTION ACTIVITIES (DBA)

Noise Source	Noise Level at 50 Ft (dBA)	Noise Level at 100 Ft (dBA)	Noise Level at 150 Ft (dBA)	Noise Level at 200 Ft (dBA)	Noise Level at 300 Ft (dBA)
Ground Clearing	83	75	71	68	64
Excavation	88	80	76	73	69
Foundations	81	73	69	66	62
Erection	81	73	69	66	62
Finishing	88	80	76	73	69

Notes: The following propagation adjustment was applied to estimate noise levels at 100, 200, and 300 feet assuming:

$dBA_2 = dBA_1 + 10 \times \text{Log } 10 \times (D_1/D_2)^{2.5}$

Where:

dBA_1 reference noise level at a specified distance.

dBA_1 is the calculated noise level.

D2 is the perpendicular distance from receiver.

D1 is the reference distance.

Source of noise levels at 50 feet: U.S. EPA, Legal Compilation, 1973.

Assuming that the ambient sound level during the day falls within the range of 50 to 60 dBA and because construction will at times occur within 25 to 100 feet of existing residential receptors and 300 feet of the preschool, some phases of construction are anticipated to generate noise levels that result in an increase in the ambient noise environment by 5 dBA Leq or more, which would impact the surrounding residential and the preschool.

Therefore, the noise impact from construction would be considered a significant short-term impact. Implementation of Mitigation Measure NOISE-1, which requires a construction noise control plan, implementation of noise suppression devices, require stationary construction equipment and staging areas to be located away from sensitive receptors, and provides for community notification and communication, would reduce adverse impacts associated with construction noise.

> Mitigation Measure NOISE-1: The project applicant would be required to prepare a construction noise control plan prepared by a qualified professional and approved by the City of St. Helena Planning Director prior to issuance of a grading permit by the City. A qualified noise professional is defined as a Board Certified Institute of Noise Control Engineering member or other qualified consultant or engineer approved by the project engineer. The construction noise control plan would include, but not be limited to, the following measures:

a) Muffle and maintain all equipment used on-site. All internal combustion engine-driven equipment shall be fitted with mufflers that are in good condition. Good mufflers shall result in non-impact tools generating a maximum noise level of 80 dB when measured at a distance of 50 feet.

b) Use "quiet" air compressors and other stationary noise sources where technology exists.

c) Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses.

d) Schedule construction activities to have the least impact on noise sensitive receptors (existing residents) in the area. In accordance with Section 8.24.10.C of the St. Helena Municipal Code, this shall be accomplished with the following measures:

   i. Limit construction activities, including grading, excavating, paving, and home building, to Monday through Saturday between 8:00 a.m. and 5:00 p.m.

   ii. Do not allow machinery to be cleaned or serviced past 6:00 p.m. or prior to 7:00 a.m. Monday through Saturday.

   iii. Limit the allowable hours for the delivery of materials or equipment to the site and truck traffic coming to and from the site for any purpose to Monday through Friday between 7:00 a.m. and 6:00 p.m.

   iv. Do not allow any construction or construction-related activities at the project site that can be heard at the property line on Sundays and holidays.

e) Notify all adjacent land uses of the construction schedule in writing.

f) Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented.

g) Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

The implementation of the above mitigation measures would reduce the impact of construction noise upon existing residences in the area to a less-than-significant level. (LTS)

K. PUBLIC SERVICES, RECREATION, AND UTILITIES

This section analyzes the potential impacts of the Hunter Subdivision Project on public services, recreation, and utilities including: police services, fire and emergency services, public schools, libraries, parks and recreation, solid waste, wastewater and water supply. Potential impacts to public services and utilities that could result from the proposed project are identified and mitigation measures are recommended, as appropriate. Stormwater drainage is evaluated in Section IV.I, Hydrology and Water Quality.

1. Setting

Existing conditions for public services, recreation, and utilities are described below. Relevant regulations, policies, and service requirements are also discussed.

a. Police Services

Police services are provided by the St. Helena Police Department located at 1480 Main Street in St. Helena. The Police Department provides police services within the city limits and maintains 24-hour security patrol throughout the community.

The Police Department has an authorized staff of 11 police officers including the Chief of Police, four dispatchers, and two part-time community service officers for a total of 17 employees.[1] There are two officers assigned to each patrol watch for the day and night shifts for the entire city. The current police officer to resident ratio is approximately 2.0 sworn officers per 1,000 residents. The average response time for all call types in the city is 2 minutes, 45 seconds. The Department's goal is to maintain an average response time of three minutes or less for all call types.

The primary law enforcement concerns within the city are increased vehicle and pedestrian traffic congestion and entrance and exit from sites.

b. Fire Protection

Fire protection services are provided by the St. Helena Fire Department (SHFD) located at 1480 Main Street in St. Helena, less than a ¼-mile from the project site. The SHFD serves the City of St. Helena and provides fire protection services within the city limits, including fire suppression, fire prevention, education, emergency medical and rescue services, and response to incidents involving hazardous materials.

[1] Michael Johnstone, Interim Police Chief, St. Helena Police Department. Written communication with Urban Planning Partners, Inc., November 28, 2011.

The SHFD is authorized to maintain a roster of a maximum of 30 paid call volunteer firefighters. The firefighters are typically trained to provide emergency medical services at various levels. The staff consists of 25 paid call firefighters, of which half of the firefighters are trained to the First Responder level the other half are certified Emergency Medical Technicians (EMT-1s). One firefighter is trained to the EMT-P (Paramedic) level. In addition, there is also one part-time administrative assistant and a part-time paid Fire Chief. The Fire Department responds concurrently with the ambulance dispatch and generally arrives on scene concurrently with the ambulance company.[2]

The SHFD's fleet includes one Type-1 fire engine, one Type-2 fire engine, one Type-1 85-foot aerial ladder truck, one Type-1 water-tender, one Type-3 engine, one Type 2 rescue vehicle, and one rescue trailer. The Fire Department also has a command vehicle, a utility vehicle, and a battalion coverage vehicle.[3]

The St. Helena Fire Department has a response time goal of 5.5 minutes from dispatch to time of arrival. The department has a set goal for a maximum response time of 8 minutes within the St. Helena city limits. On receiving a call, the site department responds to each call with a minimum of 14 firefighters. The response time to the project site under current conditions can be up to approximately 5 minutes, depending on clear crossing of the train tracks.

c. Public Schools

The project site is served by the St. Helena Unified School District (SHUSD), which provides public school service in the city. The SHUSD operates four schools, which include a primary school and an elementary school (both with alternative programs), a middle school, and a high school. Students from two nearby elementary districts also attend the district's schools. In 2012, the district's schools enrolled a total of 1,293 students in Kindergarten through 12th grade.

The current and projected enrollment, as well as existing capacity at these schools, is listed in Table IV.K-1. As shown, each of these schools is currently operating well below design capacity, and this condition is expected to continue as enrollment declines through the 2011-2012 school year.

SHUSD is currently undertaking facility improvements that include a new high school performing arts facility, multi-purpose facilities, nature trail and outdoor learning center, track and field improvements, elementary school fitness center, elementary school media center, and ongoing grounds improvements.[4]

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[2] Jim Capponi, Deputy Fire Chief, St. Helena Fire Department. Written communication with Urban Planning Partners, Inc. February 14, 2012.

[3] Jim Capponi, Deputy Fire Chief, St. Helena Fire Department. Written communication with Urban Planning Partners, Inc. February 14, 2012.

[4] City of St. Helena, 2010. *Draft General Plan Update EIR*.

TABLE IV.K-1 NEIGHBORHOOD SCHOOLS IN ST. HELENA

School	Grades Served	Capacity	2011-2012 Enrollment	Projected 2012-2013 Enrollment
St. Helena Primary School	Kindergarten – 2nd Grade	284	189	189
St. Helena Elementary School	3rd – 5th Grade	379	264	264
Robert Louis Stevenson Middle School	6th – 8th Grade	387	315	315
St. Helena High School	9th – 12th Grade	726	525	525
Total		**1,776**	**1,293**	**1,293**

Source: St. Helena Unified School District, 2011.

d. Libraries

The George and Elsie Wood Public Library is St. Helena's single public library, located approximately 0.2 miles from the project site at 1492 Library Lane. The library houses the papers of the Napa Valley Wine Library Association and the St. Helena Historical Society, consisting of some 3,500 titles and over 6,000 items. In addition, the Robert Louis Stevenson Museum is also located on the library site.

The library currently has 10.3 full-time employees staffing the library 7 days a week. The existing library serves up to 125 people per hour at peak times and on average approximately 65 people per hour.

There are no formal plans drafted for the development of new facilities, however land has been identified for 8,000 square feet expansion of the existing facility. This new facility would provide space for additional collections (particularly children's), programming and community use.[5]

e. Parks and Recreation

The City of St. Helena Parks and Recreation Department provides recreational and cultural programs for residents of the City at over 25 acres of parkland within the city limits. Facilities include eight parks, four pathways, street trees, benches, and parking lots. Maintenance of these facilities is provided by the Parks Division of the Public Works Department.

[5] Jennifer Baker, Library Director, St. Helena Public Library. Written communication with Urban Planning Partners, Inc., January 10, 2012.

The City of St. Helena parks classification system is composed of three general park types: mini parks, neighborhood parks and community parks. St. Helena's citywide parkland service goal specifies a minimum of 6 acres of parkland per 1,000 residents.[6] Currently there are 4.3 acres of parkland per 1,000 residents. The General Plan Land Use and Growth Management Element identifies adequate acreage for future parks to meet the target of 6 acres per 1,000 residents.

Lyman Park is the closest established park to the project site and is located four blocks to the northwest along Main Street. Lyman Park is a mini park of 1-acre and includes amenities such as picnic tables, grassy areas, a children's' play area, and a gazebo for events. Jacob Meily Park is the closest neighborhood park encompassing 4 acres and includes facilities such as a play field, heritage orchard, picnic area, and a children's playground.

Wappo Park is the newest neighborhood park in St. Helena, located near Pope Street and College Avenue, 0.5 miles south of the site. The park is 6.26 acres and features passive recreation facilities such as a loop trail, two picnic areas and a dog park.

f. Solid Waste

Upper Valley Disposal provides solid waste services to residents and businesses in the City of St. Helena. The agency provides an extensive recycling program and a variety of waste reduction programs, including municipal solid waste, non-hazardous materials, mixed recycling and yard waste recycling. A single-stream recycling program accommodates a wide array of wastes including plastic, glass, steel, tin, aluminum, and most types of paper and cardboard. The agency also conducts public education to teach residents and businesses about composting and its recycling and electronic waste disposal programs.[7]

Solid waste is disposed of at the Clover Flat Landfill, a Class III landfill site, located off the Silverado Trail north of St. Helena. This facility is currently recycling more than 70 percent of materials through its Construction and Demolition Recycling Facility.[8]

The landfill is currently permitted to receive 600 tons of solid waste per day. It currently receives less than half this amount due to economic changes and advances to recycling activities.

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[6] City of St. Helena, 2010. *Draft General Plan Update EIR.*

[7] City of St. Helena, 2010. *Draft General Plan Update EIR.*

[8] Christy Abreu, Education Director, Upper Valley Disposal Service. Written communication with Urban Planning Partners, Inc., January 16, 2012.

The landfill has a permitted capacity of 5.1 million cubic yards. In 2009, the landfill had a remaining capacity of approximately 3.33 million cubic yards. The landfill's estimated closure date is 2047. [9]

The project site is within the service area for Upper Valley Disposal, but no service is currently provided as the site is currently undeveloped.

g. Wastewater Treatment Facilities

The City of St. Helena provides wastewater collection and treatment service in St. Helena. The City's wastewater infrastructure includes a wastewater treatment plant, a wastewater collection system that uses 6-inch on up to 24-inch pipe and trunk lines, and one wastewater lift station.

The City's wastewater treatment plant is located at the southeast end of the city. It is a low maintenance, integrated pond system that stores treated effluent and disposes effluent by spray irrigation onto a 90-acre grass field. Wastewater is treated to a secondary level. When pond storage capacity is exceeded during the winter rains, treated effluent may be discharged into the Napa River, to a limited amount only.

Wastewater flows from the southerly end of the project are proposed to drain into an existing public manhole at the corner of Starr and Hunt Avenue via new sanitary sewer pipes. The area north of Starr Avenue, lower in elevation, is proposed to drain north through the project via new sanitary sewer pipes, through Lot 21 within a public easement and into an existing public manhole on the adjacent parcel. All sanitary sewer pipes have been sized to accommodate the project flows and designed at slopes to provide required self-cleaning velocities.[10]

h. Water

The section describes the City of St. Helena existing municipal water supply and demands as well as the local and State regulatory context that affects water supply and demand in St. Helena.

(1) Existing Water Conditions

The existing conditions in St. Helena relative to water supply and demand are described below.

[9] Christy Abreu, Education Director, Upper Valley Disposal Service. Written communication with Urban Planning Partners, Inc., January 16, 2012.

[10] Ryan Gregory, Riechers Spence & Associates. Written communication with Urban Planning Partners, Inc. December 1, 2011.

City Water Supplies. The project is located within the City of St Helena's water service area and is eligible to receive potable water service from the City to meet the project's estimated potable demands. The project site includes a water well, which has been used historically to supply irrigation water to the site. This well is proposed to remain in a production capacity to supply irrigation water to meet the residential and non-residential landscaping (e.g. community landscaping) demands of the project, reducing the water demands on the existing City supplies and delivery system.

The City has three sources of water collectively used to meet customer water needs. These include water stored and diverted from the Bell Canyon Reservoir, water obtained from the City of Napa, and local groundwater. Collectively, the City operates these supplies to maintain an anticipated future available average water supply of 1,950 AF annually.[11,12] The City of St. Helena receives surface water from two sources: water rights diverted and stored at Bell Canyon Reservoir, and contract water from the City of Napa. The City also operates and maintains a system of groundwater wells used in conjunction with the surface rights to balance demands and the availability of surface water. The following details each of the anticipated sources of water for the project.

Bell Canyon Reservoir. The City holds water rights permits issued by the State Water Resources Control Board (SWRCB) for storage and diversion of water at the Bell Canyon Reservoir. These rights are detailed in permits 9157 and 14810 issued in 1952 and 1965 respectively. As detailed in the Draft General Plan Update EIR, the City has requested that the SWRCB allow the permits to become a licensed water right.

As detailed in the City's 2010 Water Supply Plan,[13] the reservoir is anticipated to provide 1,000 acre-feet (AF) of diversion annually during "normal" hydrologic conditions, while accounting for the required fishery bypass flows and other provisions of the water right. To be conservative, the City has characterized this supply at 900 AF annually. This reduced quantity is assumed reliably available under the City's Safe Yield definition.[14] Based on analysis performed for the City's 2010 Water Supply Plan, supplies available from Bell Canyon could exceed 1,000

[11] The City currently and historically has served demands exceeding 1,950 AF annually. According to the 2010 West Yost Water Supply Plan, deliveries from 2006 through 2009 averaged 2,145 AF. According to an April 11, 2012 City staff report to the Mayor and City Council that incorporates 2010 and 2011 data, the 5-year average is trending downward and most recently equals 2,083 AF.

[12] An acre-foot is equal to approximately 325,850 gallons. Depending on local conditions, an acre-foot generally can provide enough water for 2 to 3 single-family dwelling units for a year.

[13] West Yost Associates, 2010. *City of St. Helena Water Supply Plan*, Table 2-5, page 26.

[14] The definition of Safe Yield is 1950 AF per year (2012 General Plan Policy PF 1.8)

AF annually in 60 percent of the years, and would exceed 600 AF in 90 percent of the years.[15]

City of Napa Contract. On November 8, 2011, the City approved a revised agreement with the City of Napa detailing the availability of treated water supplies from the City of Napa. Under the modified agreement, the City will receive a guaranteed delivery of 600 AF annually from the City of Napa and deliveries are no longer subject to conditions of the City of Napa's water supplies, like the shortage provision that is tied to shortages imposed by the State Water Project on Napa County's state contract – even in drought conditions. The City is obligated to pay for 600 AF whether or not the City actually takes the 600 AF allotted to it. The agreement includes provisions to accommodate additional supply on an as needed basis. The City of Napa has the right to supply this additional water from its own existing supplies or to transport the water on behalf of the City for water purchased by the City from another supplier.

For purposes of this analysis and to be consistent with the General Plan EIR, the City assumes 600 AF in all year types will consistently be available. The additional supply could be available in all year types but due to a conservative approach to available supply, this is not assumed to be the case.

City Potable Groundwater. Groundwater from the City's municipal wells would also be delivered to the proposed project as part of the City's municipal service connections. Over the past decade, the City has pumped an average of 452 AF (2001 through 2009).[16] During this time, pumping ranged from a low of 349 AF to a high of 521 AF.

As a conservative estimate, groundwater is assumed to provide a long-term average of 450 AF of the City's water per year. Being the most flexible source in the system, groundwater will function as a buffer to balance system flows based on availability of water in Bell Canyon and flow rates being delivered by the City of Napa. In dry years, groundwater use will be higher to compensate for less surface water stored in Bell Canyon. In wetter years, groundwater use will be less than average since Bell Canyon water rights would provide ample supplies. In a Phase II emergency water shortage or greater, groundwater is assumed to increase to 30 percent or more of the total demand.[17,18]

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[15] Table 2-3 of the 2010 Water Supply Plan. 60% of the time rainfall exceeds normal and 90 percent it exceed the dry year total. For instance, in 60 out of every 100 years, rainfall is above normal, and in 90 out of every 100 years rainfall exceeds dry year quantities.

[16] West Yost Associates, 2010. *City of St. Helena Water Supply Plan*, Table 1-5.

[17] West Yost Associates, 2010. *City of St. Helena Water Supply Plan*, Table 2-5, footnote "(a)". Emergency shortage conditions are governed by City Code 13.04.220.

[18] As stated in the St. Helena General Plan Update 2030, "Local groundwater is utilized to supply 20 percent of the annual water demand; this can be increased to 30

Groundwater is a reliable resource in the area and will continue to reliably serve as part of the City's water supply portfolio in the future without concern of overdraft. As documented in the February 2011 report to the County of Napa Conservation Development and Planning Department regarding groundwater conditions throughout the County, "Groundwater levels have been generally stable [in the St. Helena region] over time and do not exhibit any long-term trends."[19] Based on this and other information from the report, the City's target average use of 450 AF per year (AF/year) is conservative and well within the capacity of the groundwater basin for the foreseeable future. Figure IV.K-1 shows the current groundwater trends in the area as presented in the county groundwater study.

Non-Potable Groundwater. The existing on-site irrigation well is proposed to be used to provide non-potable supplies to the separately plumbed landscape irrigation systems throughout the project. Historically, this well has been used to serve the irrigation needs of the vineyard located on the property. Although active management of the well for irrigation has ceased in the last few years in anticipation of moving toward development and due to the construction of flood protection facilities on a portion of the property, the well is currently being used to irrigate vegetation planted as part of the flood control project. This irrigation is occurring through an agreement between the well owner and the City.

Since the well historically was used to serve the needs of the vineyard, the related pumping is part of the historic record of groundwater conditions presented in Figure IV.K-1 and represented by the County as part of the stable groundwater conditions.[20] To estimate historic use in order to compare to the anticipated landscape demands, the vineyard is assumed to cover 15 acres of the 16.9-acre parcel.[21]

Based on satellite photos of the vineyards in question, the vines appear to be in a 10-foot by 6-foot spacing pattern operated without frost protection. Prior to the

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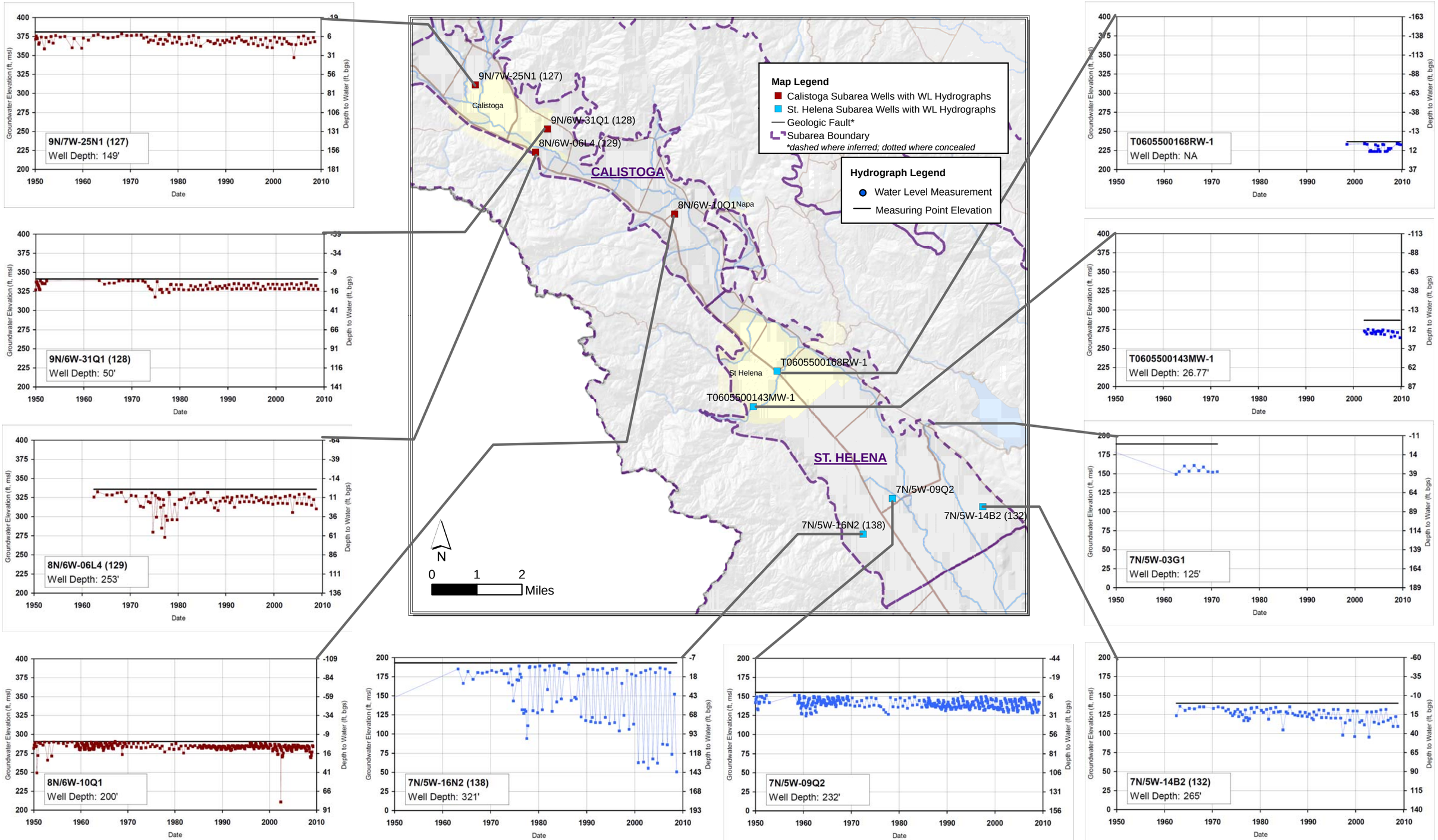
percent in the event of water shortages." [General Plan, Ch4, p. 4-4 as accessed from the City's website on April 26, 2012, (http://www.sthelena2030.com/docs.php?oid=1000000265&ogid=1000000218)].

[19] February 2011 Napa County Groundwater Conditions and Groundwater Monitoring Recommendations, Luhdorff & Scalmanni, Consulting Engineers. The data presented to support the statement shows stable water levels in the St. Helena groundwater basin over the last several decades – indicating that the aquifer can support the current levels of groundwater use without experiencing long-term lowering of groundwater.

[20] The well in question is not, however, on the included graphic.

[21] This acreage estimate is very conservative, since it does not include the portion of the original parcel that was used to accommodate the flood control project. The 16.9-acre parcel that remained is only the portion that is proposed for the project's residential components.



Prepared by: Luhdorff & Scalmanini Consulting Engineers, March 2012.

Figure IV.K-1
Hunter Subdivision Project EIR
Representative Hydrographs for Northern Napa Valley; Groundwater Elevations - Napa County

removal of some vineyards due to a flood control project, it appears that approximately 11 acres of the property was irrigated. Roads and unplanted areas made up the rest of the property. Since the flood control project, only 5.47 acres remains.[22] Based on various studies, vineyards with the same spacing operate with a crop coefficient (kc) of about 0.51.[23] The Oakville California Irrigation Management Information System (CIMIS) station has an average annual ETo of 47.73 inches.[24] Using these values, the demand since the flood protection project would be approximately 11 AF/year.[25] Prior to the flood protection project this demand would have been about 22 AF.[26] For comparison, the estimated demand for outdoor uses for the proposed project would be just under 25 AF annually – a value that nearly mimics the estimated historic and sustainable use. Though the project water use of 25 AF is larger than the historic 22 AF, the project use would be less demanding on the aquifer. Vineyard irrigation demand involves running the irrigation a few times per week in the summer months, pumping large quantities at one time. The project irrigation demand would be more spread through the year with small demands in the spring and fall and lower than historic summer demands.

Other Potential Water Supplies. The City and the proposed project have the option to use other water supplies to serve the project such as rainwater catchment or water recycling. Due to the proposed project's location over a mile and a half from the City's wastewater treatment plant, it is unlikely that the developer or other City users in northern St. Helena will use recycled water, as the City does not currently have the ability to produce and serve recycled water. For rainwater harvesting, despite receiving just over 3 feet of rain yearly on average, the timing of rain coming mostly during winter months would require large storage reservoirs to be of use during the dry season to meet landscape water demands. This challenge essentially eliminates the feasibility of catching rainwater as a supply. The costs of installing such large storage facilities to be useful when plentiful groundwater exists make rainwater catchment likely financially prohibitive. For purposes of this analysis, alternative water supply options are not considered.

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[22] Based on Google Earth Pro survey of planted area from 2009 satellite photos.

[23] Irrigation of Winegrapes in California, Larry E. Williams, Department of Viticulture & Enology, University of California-Davis, and Kearney Agricultural Center. A crop coefficient is used to adjust available reference evapotranspiration data to understand the water needs of a specific crop. http://www.practicalwinery.com/novdec01p42.htm.

[24] ETo represents the term "evapotranspiration." This value reflects the use of a particular reference crop (generally grass) in place at the CIMIS station. Multiplying the Kc by the ETo provides scientifically based estimate of the demand for a particular crop. This method is used extensively for determining the irrigation needs for landscaping and for agricultural commodities.

[25] 47.73 * 0.51 / 12 * 5.47 = 11.1 AF.

[26] 47.73 * 0.51 / 12 *11 = 22.3 AF.

Future City Demand Conditions. This section details the future water demand conditions for the City of St Helena. Previous documents have stated that the City's demand will grow due to a set of demand factors, including an increase in residential units, and at the point that the City reached a build-out scenario, the demands would level off.[27] This section, however, explains why the projected growth in demand will be mitigated through on-going City-wide actions and existing City ordinances.

The demand factors assumed in previous documents do not account for a number of factors including smaller lot sizes with larger home footprints (less landscaped area), CalGreen code compliant fixtures, Model Water Efficient Landscape Ordinance (MWELO) limited landscaping, general availability of water efficient fixtures and appliances, and changing public perception of water use. A more accurate representation of future water use in St. Helena considers factors such as landscaping area and demand factors consistent with current customer use data.

City Code 13.12.050 requires a conservation offset for any new water customer. Prior to construction, any project is required to offset its water demand by providing for the implementation of conservation measures for existing households. Therefore, under this code, the Proposed Project is required to complete toilet retrofits or other City approved conservation measures to offset water use. This code effectively locks City water demand at its current levels with the only minor climate related fluctuations. Table IV.K-2 represents the total water use over the last five years providing an average which, under current policy, represents the City's future demand.

TABLE IV.K-2 CURRENT CITY WATER USE (AF/FISCAL YEAR)

Fiscal Year	Acre Feet (AF)
2006-2007	2,384
2007-2008	2,228
2008-2009	2,126
2009-2010	1,860
2010-2011	1,779
5-Year Average	**2,075**

Source: Data from the April 11, 2012 Water Supply and Demand Conditions Update, Staff Report, City of St Helena, includes loss factor.

The City commissioned the Safe Yield Committee and charged the group with analyzing the City's supplies for long-term reliability. The Safe Yield Committee concluded that the City was already exceeding the long term safe yield of the City's water supply, which it calculated as 1,950 AF/year. This safe yield supply consists of 600 AF from the Napa contract, a conservative 900 AF from Bell Canyon reservoir, and an average use of 450 AF from groundwater. As represented by the Safe Yield Committee's Report of

[27] The 2010 Water Supply Plan (West Yost) projects an increased water demand to match the General Plan's anticipated increase in the number of residential and non-residential customers.

March 17, 2011, the estimated 1,950 AF of supply serves as the demand target for the City. In order for the City to reduce potable water use to 1,950 AF, continued conservation by existing customers and within the city is necessary.

With a 5-year average use of 2,083 AF and a demand target of 1,950 AF, it would appear that some conservation is still required. However, with current use at 1,779 AF, maintaining the current demand level will bring the 5-year average under the 1,950 AF target within the next one to two years.[28]

With the natural downward trend and projected continued drop in the 5-year average water use, the existing customer base is expected to be below the Safe Yield Committee's threshold for considering new customers. This provides opportunities for future development to offset anticipated future demands per Municipal Code 13.12.050.[29]

Table IV.K-3 shows the water use trend comparisons into the future. The existing estimates from the 2010 Water Supply Plan show a potential water demand into the future without any conservation. However, with the recent data considered into the trend analysis, the existing customers already use less than the Safe Yield Committee's threshold and since future demands are required to offset their projected use, the future demands would not be expected to exceed the existing policy limit of 1,950 AF annual use set by the Safe Yield Committee.

TABLE IV.K-3 FUTURE CITY WATER USE (AF/YR)

	Current	2020	2030
2010 Water Supply Plan	1,779	2,250	2,350
Existing Customers		~1,779	~1,779
Future Demand with Offsets		<1,950	<1,950

Source: Current use from 2010-2011 FY Water Supply and Demand Conditions Update Staff Report. 2020 and 2030 use for existing customers is assumed to match current use.

(2) Water Supply Regulatory Setting

State, regional, and City mandates and ordinances that affect the City's water supply are described below according to the following categories:

- Water conservation objectives
- Indoor infrastructure requirements
- California Model Water Efficient Landscape Ordinance and County Ordinance
- Metering, Volumetric Pricing, and Water Budgets

[28] See data presented in the April 11, 2012 City staff report to the Mayor and City Council regarding water supply and demand conditions.

[29] City of St Helena, 2012. *Staff Report, Water Supply and Demand Conditions Update.*

- City of St. Helena Water Conservation and Emergency Shortage Ordinances
- City of St. Helena General Plan Policies

State Regulations. Applicable State regulations and policies are described below.

Water Conservation Objectives. On November 10, 2009, Governor Arnold Schwarzenegger signed SBX7 7, which requires each urban water supplier to select one of four methods for achieving water conservation targets for 2020.[30] This bill establishes a statewide goal of achieving a 20 percent reduction in urban per capita water use by 2020 for urban retail water suppliers. Although the City is not currently required to prepare an Urban Water Management Plan,[31] where conservation targets are disclosed, the City and its customers have been and continue to implement conservation measures that are moving the City toward desired statewide reductions. On-going statewide, regional, and City efforts, combined with natural attrition and replacement of water fixtures and appliances with more water efficient units will continue to decrease future unit demands for existing customers. This trend for reduced water demand is supported by recent customer use data as presented later in this discussion.

Indoor Infrastructure Requirements. In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CAL Green Code) that requires the installation of water-efficient indoor infrastructure for all new projects beginning after January 1, 2011. CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations.[32] The CAL Green Code applies to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure. All development projects must satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code.

The CAL Green Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the

[30] California Water Code Section 10608.20.

[31] The Urban Water Management Planning Act requires water purveyors who serve more than 3,000 connections or more than 3,000-AF of water annually to prepare an Urban Water Management Plan every 5 years (for years ending in "0" and "5"). Upon reaching the trigger, a purveyor must comply with the Act, even if in between the required reporting years.

[32] The CAL Green Code is Part 11 in Title 24. All references in this WSA will be to the Chapter and Section numbers that appear in the Draft document which may be obtained by visiting the California Building Standards Commission web site at: http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf.

CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline."[33]

California Model Water Efficient Landscape Ordinance and County Ordinance. In 2006, the California Legislature enacted, and the Governor signed, the Water Conservation in Landscaping Act, which required the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO).[34] On September 10, 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required that a retail water supplier and county adopt the provisions of the MWELO by January 1, 2010 or enact its own provisions equal to or more restrictive than the MWELO provisions.[35] The County of Napa adopted the MWELO as its ordinance so all water use calculations have been following the MWELO steps. The City also has a landscaping ordinance, which issues landscaping approval after reviewing project-specific landscaping plans. The City ordinance follows the MWELO calculation methods.

Metering, Volumetric Pricing, and Water Budgets. California Water Code §525 requires water purveyors to install meters on all new service connections after January 1, 1992. As a result, homes constructed after January 1, 1992 all have water meters installed. California Water Code §527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed.

Local Regulations.

St. Helena Water Conservation and Emergency Shortage Ordinances. The City of St. Helena has ordinances addressing water supply availability and water shortage contingencies including Chapter 13.12.050 of the Municipal Code

[33] See CAL Green Code. For Residential construction, Section 4.303.1 provides the residential water conservation standard and Table 4.303.2 identifies the infrastructure requirements to meet this standard. Table 4.303.1 and Worksheets WS-1 and WS-2 are to be used in calculating the baseline and the reduced water use if Option 2 is selected. For non-residential construction, Section 5.303.2.3 provides the water conservation standard as well as the baseline and reduced flow rate infrastructure standards. Note that Worksheets WS-1 and WS-2 incorporate both residential and non-residential fixtures, yet the water use is still to be analyzed by "building or structure" as specified in Chapter 1, Section 101.3.

[34] Gov. Code Sections 65591-65599.

[35] California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 492.4. The MWELO provides the local agency discretion to calculate the landscape water budget assuming a portion of landscape demand is met by precipitation, which would further reduce the outdoor water budget. For purposes of this WSA, precipitation is not assumed to satisfy a portion of the outdoor landscape requirement because the determination of an appropriate effective precipitation factor is highly uncertain given the various landscape slopes, terrain composition, concurrent watering schedules, etc.

requiring new developments to "completely offset its water requirement…" by identifying residential or non-residential properties eligible for retrofitting with water efficient hardware and verifying that the required number of retrofits have been completed prior to the issuance of a certificate of occupancy. Chapter 13.04.220 of the Municipal Code also addresses water shortage emergency conditions.

St. Helena General Plan. Several goals and policies of the City of St. Helena General Plan are applicable to the project. Relevant policies are listed in Section 2, Regulatory Setting, below.

a. Regulatory Setting

Relevant policies from the St. Helena 1993 General Plan and Draft General Plan Update are listed below.

(1) Existing 1993 General Plan

The 1993 Public Facilities and Services Element identifies issues and establishes policies related to water, storm drainage/flooding, and schools. The element establishes the limits of the City in providing the necessary infrastructure to accommodate the growth rate policies and maintain satisfactory levels of service in the city. Applicable policies are listed below:

PUBLIC FACILITIES AND SERVICES
Water
POLICY 9.2.1 Approval of new development shall be contingent upon the ability of the City to provide water without exceeding the safe annual yield of its water supply system.[36] The City has established an annual growth rate not to exceed 17 dwelling units. Future growth will depend upon the ability to secure a reliable source of water. Existing supplies have been established at 1800 AF with a groundwater component limited to 20 percent or 360 AF. The City Council established 20% as the maximum amount of water conservation that would be reasonable in the event that the City's groundwater source was not available for some reason. The Stonebridge Well can supply this groundwater need by using 75 percent of the production capacity assuming a 20% downtime factor. Bell Canyon reservoir supplies a safe annual yield of 1440 AF based on data compiled over the last 12 years.
POLICY 9.2.3 Adopt and implement water conservation measures as a means of extending the capabilities of the City's water supply. Adoption of a Toilet Retrofit Ordinance to convert high-use fixtures to low-flow fixtures and a Water-Efficient Landscape Ordinance to require water-conserving xeriscapes could increase the number of available water connections. It is estimated that 1600 residential units could be converted to low-flow fixtures saving about 50 AF of water per year, which could serve 125 units.

[36] This policy is anticipated to be replaced with a new policy that defines the Safe Yield of the City's water resources and recommends that the operating capacity recognized by the City be modified to 1,950 AF.

PUBLIC FACILITIES AND SERVICES
Treatment Plant
POLICY 9.3.1 Provide adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth permitted under the City's Growth Management System.
POLICY 9.3.3 Require extension of City sewer to areas with limited sewerage capacity prior to approval of future growth in these areas.
Schools
POLICY 9.6.3 Support and cooperate with the St. Helena Unified School District in its efforts to ensure adequate financing for new school facilities. To this end, the City shall cooperate with the School District in the collection of school facility development fees from new residential and non-residential development, and will work with the District to identify, establish, and implement additional measures that may be necessary to adequately finance school facilities in the city.

The 1993 Parks and Recreation Element identifies park and recreation resources in St. Helena, and outlines a general strategy for meeting the existing and projected demand for recreation facilities in the community. Applicable policies are listed below:

PARKS AND RECREATION
POLICY 10.3.5 Encourage developers to provide open space and recreational facilities as part of new residential developments. The City may consider density bonuses for the inclusion of significant public recreational facilities in new development
POLICY 10.3.6 Assess park development fees on all new commercial, industrial, and residential development sufficient to fund City-wide park improvements.

(2) Draft General Plan Update

The Public Facilities and Services Element from the Draft General Plan Update aims to improve community services facilities, physical infrastructure, and a range of public utilities and services to best meet St. Helena's needs. Applicable policies from the Draft General Plan Element are listed below:

PUBLIC SERVICES AND FACILITIES
Water
POLICY PF1.1 Require that the approval of new development be contingent upon the ability of the City to provide water without exceeding the safe annual yield of its water supply system.
POLICY PF1.8 The City shall develop and adopt regulations that would not allow approval of any project that would result in total potable water usage greater than 1,950 acre-feet per year unless either a) the project includes housing affordable to lower income households and a determination is made pursuant to Government Code 65589.7 that a "sufficient water supply" is available to serve that project and none of the exceptions set forth in 66589.7 (c) apply; or, b) new sources of water are made available to the City. Residential projects that contain affordable housing shall receive priority allocation of water.
IMPLEMENTING ACTION PF1.G The City of St. Helena shall not draw or sell any groundwater beyond that currently allowed until a safe yield has been identified through a study of the North Main Basin Aquifer by a qualified hydro geologist.

PUBLIC SERVICES AND FACILITIES
Water
IMPLEMENTING ACTION PF1.H Permit no new development relying on groundwater unless and until it is determined that the incremental production of groundwater to support the development will not adversely impact the water production capability of the aquifer supporting the City's wells.
IMPLEMENTING ACTION PF1.I Track the drilling of new private wells in and around St. Helena and, if so recommended by the qualified hydrologist hired by the City's water system, request that the County impose a moratorium on new well drilling if needed to protect the production capability of the City wells.
IMPLEMENTING ACTION PF1.M Develop and adopt regulations to ensure that total potable water usage is not greater than 1,950 acre-feet per year unless the project includes housing affordable to lower income households and a determination is made pursuant to Government Code 65589.7 that a "sufficient water supply" is available to serve that project and none of the exceptions set forth in 66589.7 (c) apply; or, b) new sources of water are made available to the City. Residential projects that contain affordable housing shall receive priority allocation of water.
IMPLEMENTING ACTION PF1.O Require that all new residential housing projects incorporate "best practices" for minimizing water usage.
Sewer
PF2.1 Ensure adequate sewage treatment capacity at the City treatment plant to meet the needs of population growth, taking into account the City's Growth Management System, the Regional Housing Needs Allocation and the needs of non-residential users.
IMPLEMENTING ACTION PF2.A Require all new units on parcels less than two acres, except those in Woodlands and Watershed Districts, to connect to the City sewer. All existing units within 200 feet of an existing sewer shall connect to the City sewer whenever feasible. Many of the residential units cannot expand without abandoning on-site septic systems and connecting to the sewer which may, in some cases, require an extension of the sewer.
IMPLEMENTING ACTION PF2.D Urban services such as sewer, water and storm drainage will only be extended to development within the Urban Limit Line. Exceptions will be permitted when undue hardship can be demonstrated, and when proposed improvements are not found to induce growth.
Schools and Libraries
POLICY PF5.4 Require that the approval of residential, commercial or industrial development be contingent upon the mitigation of the impact of such development on the St. Helena Unified School District's ability to serve school-age children.

The Parks and Recreation Element from the Draft General Plan Update 2030 aims to effectively manage the City's parks and recreation programming and to support community members' health, entertainment and high quality of life. Key to these efforts is creating and maintaining a network of bicycle and pedestrian trails that establishes connections from residential neighborhoods to parks, schools, and goods and services. Applicable policies from the Draft General Plan Element are listed below:

PARKS AND RECREATION
A Comprehensive and Interconnected System of Parks
IMPLEMENTING ACTION PR1.F Increase City park land dedication requirements for new developments. Include specific park acreage and use requirements according to the type and scale of new development.

2. Impacts and Mitigation Measures

This section discusses potential impacts on public services, recreation, and utilities that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the potential impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.K-4.

TABLE IV.K-4 PUBLIC SERVICES AND UTILITIES IMPACTS SUMMARY TABLE

CEQA Significance Criteria	*EIR Findings*
▪ Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	Focused out of Initial Study (see page 287)
▪ Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	LTS with Mitigation (see Impact SVCS-1 for water supply on page 299)
▪ Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Addressed in Section IV.I, Hydrology and Water Quality, page 235
▪ Have sufficient water supplies available to serve the project from existing water entitlements and resources, or are new or expanded entitlements needed?	LTS with Mitigation (see Impact SVCS-1 on page 299)
▪ Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the providers existing commitments?	Focused out of Initial Study (see page 287)
▪ Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	LTS (see page on page 291)
▪ Comply with federal, state, and local statutes and regulations related to solid waste?	Focused out of Initial Study (see page 287)

Source: Urban Planning Partners, 2012.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on public services, recreation, and utilities and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to public services, recreation, and utilities and a summary of comments submitted during the scoping period relevant to the scope of the analysis is also provided.

(1) CEQA Significance Criteria

Based on Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on public services, recreation, and utilities if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or

physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection; police protection; schools; or other public facilities;

- Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have a substantial adverse physical effect on the environment;
- Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board;
- Require or result in construction of new stormwater drainage facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Exceed water supplies available to serve the project from existing entitlements and resources, and require or result in construction of water facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs and require or result in construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
- Violate applicable federal, state, and local statutes and regulations related to solid waste; and
- Comply with federal, State, and local statutes and regulations related to solid waste.

While important to the quality of life in the project area, impacts to schools from increased development do not necessarily result in physical environmental impacts. In *Goleta Union School District v. Regents of the University of California* (2d Dist. 1995) (37 Cal. App. 4th 1025, 1032, 1995), the Court of Appeal found that "Classroom overcrowding, per se, does not constitute a significant effect on the environment." A General Plan may have policies relating to public service levels in general or schools in particular. If a development project overwhelms

the school district's capacity and quality of service, it could be inconsistent with the General Plan. The City of St. Helena General Plan does not have a specific policy related to school service levels.

Impacts related to stormwater drainage facilities have been discussed in Section IV.I, Hydrology and Water Quality.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011. The Initial Study determined that the project would have no impact or a less-than-significant impact with regard to the following criteria:

- Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects; or
- Comply with federal, state and local statutes and regulations related to solid waste.

As a result, no further discussion of these criteria is provided in this section.

(3) Scoping Comments and Scope of Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A Scoping Summary of comments received is included in Appendix A of this document.

Comments concerning public services and utilities were related to potential impacts to parks and recreation, fire services and water supply. A discussion of these topics has been provided in the section below. Concerns were also raised regarding wastewater treatment and the capacity of the existing treatment plant. However, the Initial Study found that the City has adequate capacity to accommodate the amount of wastewater that would be generated by the project. The publicly owned Treatment Works is operating under Order No. R2-2010-0105 from the RWQCB. Order No. R2-2010-0105 documents that the wastewater treatment plant has adequate capacity to accommodate the amount of wastewater generated by buildout of the proposed project. As a result, no further discussion is included below.

b. Less-than-Significant Public Services, Recreation and Utilities Impacts

The proposed project would accommodate an estimate of 211 people.[37] This is an approximately 3 percent increase over existing population and 22 percent of the 2010 General Plan Update Draft EIR projected population increase of 921 people for a total population of 7,021 by 2030.[38]

Pursuant to the Municipal Code Section 3.32.020, the City of St. Helena collects development impact fees on new development or conversions within the city to pay for public improvements related to civic improvement projects, public safety, sewer projects, water projects, traffic mitigation, and storm drainage.

Civic Improvement fees are collected in a "Civic Improvement Impact Fund" established for the sole purpose of providing monies for the acquisition, construction, and reconstruction of city hall, the St. Helena library, public parks, playgrounds, open spaces, community facilities, recreation facilities and equipment and other capital purposes needed for providing civic services.

A "Public Safety Impact Fund" has also been established to receive all revenues derived from Public Safety Impact fees. The public safety impact fund is established for the sole purpose of providing monies for the acquisition, construction, and reconstruction of facilities and equipment and other capital purposes needed for the City's fire and police department in providing police and fire protection services.

Development of the proposed project would result in the following less-than-significant impacts to police, fire, school, library, and parks and recreational services.

(1) Police Services

The proposed project would create a population increase above existing population of three percent. This population increase is within the projected population for proposed growth in the General Plan Update Draft EIR. The projected growth would increase demand for police services, but would not create a need for new or expanded police facilities.[39]

The Police Department conducts a Crime Prevention Through Environmental Design review of vegetation and lighting proposed for new development to advise on design measures that improve public safety. A public safety impact fee of one dollar four cents ($1.04) per square foot of new construction will be

[37] Based on an estimate of 2.43 persons per unit, average for Single and Multi-Family, City of St. Helena *Draft General Plan Update EIR, 2010*.

[38] City of St. Helena, *Draft General Plan Update EIR*, 2010.

[39] Jackie Rubin, St. Helena Police Chief. Email communication with Urban Planning Partners, April 26, 2012.

imposed on the project and dedicated to public safety related improvements in St. Helena.

The increase in demand for police services could be met by existing staffing and facilities and the increased demand would not require the construction of any new facilities (i.e., new police station) to provide adequate police protection. As such, the proposed project would have a less-than-significant impact on police services.[40]

(2) Fire Services

The proposed project would create a population increase above existing population of three percent. This population increase is within the projected population for proposed growth in the General Plan Update Draft EIR. As determined by the General Plan Update Draft EIR, the projected growth would increase demand for fire services, but would not create a need for a new or expanded fire station.

The Fire Station is within ½-mile of the site, which the SHFD considers as an acceptable distance to maintain the standard response time. Response time to the project site is currently 5 minutes; it can be longer depending on normal stoppages of the Wine Train in St. Helena.

A public comment during the scoping session raised the issue of a single ingress and egress through Adams Street. The project has a second point of ingress and egress on Starr Avenue. However, the Fire Department has raised a concern regarding a single point of ingress and egress for the work force homes on Adams Street. The single access/egress point would make evacuation, rescue, firefighting or EMS access more difficult for the fire department. The site layout for the work force homes has not yet been determined and would be subject to plan review by the SHFD to ensure proper life safety standards and adequate emergency response access.

Fire service demand is not expected to increase with the new construction which building codes now require to be sprinklered for fire safety.[41] A public safety impact fee of one dollar four cents ($1.04) per square foot of new construction will be imposed on the project and dedicated to public safety related improvements in St. Helena.

The increase in demand for fire and EMS services could be met by existing staffing and facilities and the increased demand would not require the construction of any new facilities (i.e., new fire station) to provide adequate fire

[40] Ibid.

[41] Jim Capponi, Deputy Fire Chief, St. Helena Fire Department. Written communication with Urban Planning Partners, Inc., February 14, 2012.

protection. As such, the proposed project would have a less-than-significant impact on fire services.

(3) Schools

As discussed above, while important to the quality of life in the project area, impacts to schools from increased development do not necessarily result in physical environmental impacts. However, if a development project overwhelms the school district's capacity and quality of service, it could be inconsistent with the General Plan.

The proposed project would develop a maximum of 87 medium-density single- and multi-family housing units on the project site. Up to 25 of these units would be affordable housing rental units. Based on the student generation rates utilized in the General Plan (0.4 elementary school student, 0.1 middle school student, and 0.2 high school student per unit[42]) the 87 units would generate a total of approximately 35 elementary school students, nine middle school students, and 18 high school students. Given that 36 of the units will not be single-family houses, these estimates may be high.

The Primary and Elementary schools currently have a remaining enrollment capacity for 210 students and the Middle school has a remaining enrollment capacity for 72 students. The High School has a remaining enrollment capacity for 201 students. As such, the projected student generation of this project would not exceed enrollment capacities in SHUSD.

Pursuant to California Education Code Section 17620(a)(1), the SHUSD currently collects a facilities fee of $2.97 per square foot of new construction for residential development.[43]

As described within this section, the schools are currently operating well below capacity and are anticipated to have available capacity for future students. The SHUSD would be able to accommodate additional students generated by the proposed project and no new facilities would need to be constructed. As such, the proposed project would have a less-than-significant impact on school services and facilities.

(4) Libraries

The proposed project would cause an increase in the demand for library services, but implementation of the proposed project by itself would not require the con-

[42] The Draft General Plan EIR acknowledges that these factors may over project students since some of the housing units would likely be smaller than a standard single-family unit and therefore house fewer students.

[43] Greg Medici, St. Helena Unified School District. Written communication with Urban Planning Partners, Inc., February 14, 2012.

struction of new or remodeled library facilities. A civic improvement impact fee of $2.25 will be directed to the Civic Improvement Fund which includes funding for library improvements. The effect of the project on the need for new or expanded library facilities is, therefore, considered a less-than-significant impact.

(5) Parks and Recreation

The proposed project would create an increase in population, thus increasing the demand for parks and recreation facilities. With a maximum of 87 new single- and multi-family residential units, the proposed project would result in an increase to the St. Helena population by up to 211 residents. Using the City ratio of 6 acres of local-serving parkland per 1,000 residents, the additional project residents would yield an increase demand of 1.2 acres of parkland in St. Helena. The Parks and Recreation Element of the Draft General Plan Update includes the area immediately east of the site towards the Napa River as a potential park space. Also, though no new public parkland is included within the project area, the project does comply with the relevant Parks and Recreation Element recommendations for St. Helena by incorporating a pedestrian-scaled streetscape throughout the project as shown in the conceptual landscape plan for the proposed project (see Figure III-8 in Chapter 3, Project Description).

Comments regarding the City's current ratio of population to local-serving parkland were made during the Public Scoping period. The City is currently not meeting its goal of 6 acres per 1,000 residents. This project would further lower the existing condition for the ratio of population to parkland. However, the City has identified three potential future park sites totaling 42.25 acres. One of the identified possible future park sites is the 15-acre Flood Protection Project site which will have interpretive trails and passive recreational use. This area is currently providing passive recreational use next to the site.

A civic improvement impact fee of $2.25 per square foot of new construction will be directed to the Civic Improvement Fund which includes improvements to parks and recreation.

Although the proposed project would increase the resident population, it does not include new publicly-accessible park and recreational facilities within the project site. The project is not expected to result in substantial or accelerated physical deterioration of existing parks and open space and would not require the construction or expansion of recreational facilities which might have a substantial adverse physical effect on the environment.

(6) Solid Waste

The proposed project would be served by landfills with the capacity to handle solid wastes generated by both the demolition and operational phases of the proposed project.

As previously described, the Upper Valley Disposal Service (UVDS) is permitted to receive 600 tons of solid waste per day. However, it currently receives less than half this amount. The amount of solid waste generated by operation of the proposed project would not exceed the capacity of the Clover Flat Landfill and would therefore not require the construction or expansion of landfill facilities. As such, operation of the proposed project would have a less-than-significant impact on solid waste facilities.

The proposed project would comply with existing solid waste reduction requirements and would not violate applicable federal, State and local solid waste statutes and regulations.[44]

c. Significant Impacts

This section quantifies the anticipated water demands of the proposed project on both City potable water supplies and local groundwater resources, and assesses the potential for significant impacts to the City's water supply resources. Implementation of the proposed project could result in impacts to water supply as described below.

(1) Proposed Project Demands

This section describes the methods used and the values estimated for unit demand factors for the residential elements of the Hunter Subdivision Project. Residential demand factors are represented as AF per dwelling unit per year (DU/year).[45] Residential demand factors are broken into categories to reflect the three housing types proposed in the project: single-family, multi-family, and granny units.

The dwelling unit (DU) demands for the 51 single-family units reflect detached homes located on an average lot of 8,330 square-feet, with individual landscaping, hardscapes, pools and other anticipated outdoor features.[46] Typically, single-family residences have a higher number of people per house than multi-family housing units and a larger landscaped area on a per person basis.

The 25 multi-family units share common landscaped areas and have minimal or no individual landscape demand. Multi-family residences typically have a lower average number of people per unit than a single-family unit. These factors result in lower DU water demand for multi-family residential units.

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[44] Christy Abreu, Education Director, Upper Valley Disposal Service. Written communication with Urban Planning Partners, Inc., January 16, 2012.

[45] An acre-foot is equal to approximately 325,850 gallons. Depending on local conditions, an acre-foot generally can provide enough water for 2 to 3 single family dwelling units for a year

[46] Square footages from subdivision tentative map, Sheet TM1

Each of the 11 granny units proposed would be associated with a single-family residential unit which would result in 11 of the single-family parcels having two units on one parcel. It is expected that the granny units would be characterized with lower occupancy rates, similar to the multi-family units, resulting in lower indoor use and no individual landscaping water demand as the landscaping surrounding the granny units would already be included as part of the single-family unit's water demand. Additionally, the granny units would be stand-alone buildings as required by the City's zoning regulations. This may result in a smaller amount of on-site landscaping.[47] To provide conservative water-use estimates, minimal additional hardscape is assumed to exist on the single-family lots when granny units are included.

The residential unit demand factors described below reflect two distinct uses: indoor use and outdoor use. The indoor and outdoor components are ultimately combined into a total unit demand factor for each of the residential land-use categories.

Indoor Residential Unit Demand Factors. Indoor demands are derived from a meter study of a select grouping of newer housing units in the current St. Helena service area that have similar indoor use with currently available water use fixtures and appliances.[48] The meter study provided an average monthly water use over a number of years. In the winter months this demand is lowest due to the decrease in demand for outdoor water use. Twenty-three meters were analyzed from 2006 to 2011. With the recent real estate market shift, some of the homes in the meter study had months with zero water use, suggesting that the homes were vacant. Data indicative of vacant homes was excluded from the analysis, which resulted in higher average values, which conservatively offers a better representation of average indoor use. The resulting lower indoor use than seen in older homes is consistent with data for newer construction and installation of more efficient and lower-water-using fixtures and appliances in other communities.

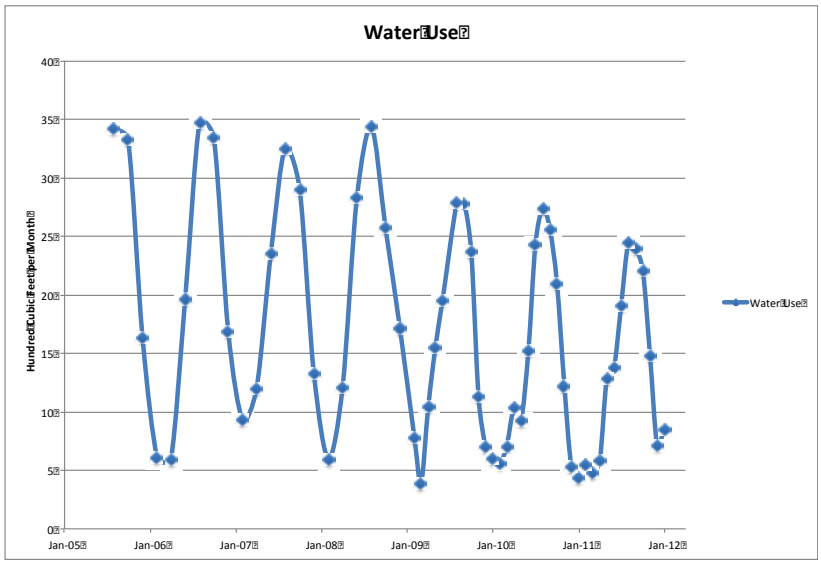
For the St. Helena customer base used in the meter study, the months of January and February resulted in the lowest water demand. The average of the lower of these two months for the years in the study was used as the indoor water demand. The actual indoor water demand would be lower, since the occasional use of water for outdoor needs during these winter months adds a small quantity to the January/February assumed indoor values (e.g., use of a garden hose and landscaping irrigated year-round due to people not turning off their irrigation

[47] Per St Helena Code Section 17.116.030 B, the second unit (granny unit) must be smaller than 850 square feet and an additional parking space shall be provided.

[48] The City analyzed approximately 23 homes in the Meadow Creek subdivision. These houses are representative of the type of home anticipated at the proposed project.

systems). To obtain more accurate estimates of indoor water use would require an analysis of homes with separate indoor and outdoor water meters, which do not exist in the city. Table IV.K-5 shows the water use trend from the meter study.

TABLE IV.K-5 METER STUDY WATER USE GRAPH



Source: Meter Data from City of St. Helena, with analysis performed by Tully and Young, 2012.

The shift in water use in summer versus winter indicates how much water is for landscaping by comparison. This trend resulted in average indoor water use of 5.8 cubic feet per month or approximately 0.16 AF/year.[49]

This meter study value is conservatively used to represent the indoor portion of annual water demand. However, since the median age of homes surveyed is 14 years, the water demand is higher than what would occur for the proposed project as the older homes are not subject to the requirements of the CalGreen code. Though the CalGreen code requires a 20 percent reduction over baseline indoor use, a 10 percent reduction in the analyzed indoor demands is

[49] Water demand analysis is typically completed using units of AF per year to understand the overall average annual demand from a proposed project. However, for perspective, the resulting 0.16 AF per year indoor use equates to approximately 140 gallons per day (gpd) per dwelling unit (assuming 365 day per year use). If three people lived in the home, average indoor use per person would be approximately 47 gpd.

conservatively expected for the new houses in the proposed project.[50] Using the meter study and estimated additional reduction results in an indoor demand of 129 gallons per day (gpd) or 0.144 AF/year. Multi-family unit indoor demand is assumed to be the same as the single-family indoor demand as a conservative estimate. This conservative estimate may not reflect the reality that multi-family residential units generally have fewer people per DU, and thus indoor use would likely be lower. Table IV.K-6 provides a summary of the indoor demand factors assumed for the proposed project.

TABLE IV.K-6 INDOOR WATER DEMANDS

Unit Type	GPD	AFY
Single-Family	129	0.144
Single-Family with Granny Unit	193	0.216
Multi-Family	129	0.144

Source: Meter Data from City of St. Helena, with calculations performed by Tully and Young, 2012.

An indoor demand factor of about 0.15 AF/year per DU is assumed as a conservative estimate for the proposed project's indoor use. The single-family residences with additional granny units may be metered separately or may have a shared meter. For this analysis, the granny units are estimated to increase the indoor demands on the corresponding 11 single-family parcels by 50 percent.

Outdoor Demand Factors. Outdoor unit water demands for the proposed project are calculated based on the landscape size and regulations under the MWELO. As discussed previously, the MWELO provides a methodology to calculate potential landscape water demands. A primary factor in this calculation is evapotranspiration (ET). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For this project, ETo data is obtained from a California Irrigation Management Information System (CIMIS) station located in the nearby town of Oakville.[51] The Oakville CIMIS station has an average annual ETo of 47.73 inches, which is used for the project-specific calculations. This station is only a few miles from the City of St. Helena and should provide accurate ET data for calculations and the irrigation controllers for the proposed project.

MWELO requires the use of at least a 71 percent irrigation efficiency factor. Assuming 71 percent irrigation efficiency, the average plant factor must be 0.50. It would be possible to stay within the water budget if the average plant factor were higher than 0.50 by designing an irrigation system with an efficiency higher than 71 percent, given the relationship between a Plant Factor (PF) and Irrigation Efficiency (IE) in the Applied Water formula of AW=(ETo*PF)/IE. Using the MWELO

[50] The baseline would be defined by pre CalGreen fixtures. The homes in the meter study were constructed using the fixtures with the same flow rates as the pre CalGreen baseline. This reduction is included to account for the mandatory reduction in fixture flow such as the reduction in toilet flow from 1.6 gallons per flush to 1.28 gallons per flush.

[51] CIMIS station 77, Oakville CA.

methodology, the project's maximum water use would be limited to 2.80 feet or 33.61 inches of water.[52]

Under the implementing regulations of MWELO, counties can implement their own water conservation ordinances as long as they are at least as effective. As discussed before, Napa County has adopted the State model ordinance and the City has adopted an ordinance that also follows the MWELO calculations.

Given the City requirements, the calculated value of 2.80 AF per acre of landscape under MWELO, reflects a conservatively high maximum. Actual landscape use would likely be lower, based on the design of landscape plans by the developer and subsequent City approval.[53]

For purposes of estimating the outdoor demand, the 51 single-family lots are characterized as each being 8,330 square feet on average, with 11 lots also containing granny units. Lots with granny units would have likely have more hardscape due to the increased gross building square footage and the requirement of one additional on-site parking space.[54] Building and landscaping footprints of 2,528 square feet and 5,802 square feet, respectively for single- and multi-family units, are assumed for this analysis.[55] The building footprint would accommodate the house as well as hardscapes (e.g., a driveway, walkways and patios around the house). The average building footprint is assumed to be 1,000 square feet.[56] The driveways are planned to be 20 feet wide and 25 feet long. The patio and walkways are assumed to be 500 square feet total. This leaves a maximum landscaped area of 5,802 square feet.[57] When multiplied by the MWELO maximum irrigation value, the resulting outdoor demand estimate is 0.37 AF/year per dwelling (see Table IV.K-7).

TABLE IV.K-7 OUTDOOR DEMANDS

Unit Type	Landscape Area Per Lot (SF)	AFY Per Lot
Single-Family	5,802	0.37
Single-Family with Granny Unit	5,802	0.37
Multi-Family	2,326	0.15
Community Landscaping	345	0.02

Source: Tully & Young, Inc. 2012.

[52] (47.73" * 0.5) / 71% = 33.61" = 2.80'

[53] St Helena Code Section 17.112.140 calls for a landscaping documentation package to be approved prior to issuance of a building permit.

[54] Per Code Section 17.116.030–B–6.

[55] 20- x 25-foot driveway, 2,000-square-foot two-story home footprint, 22 x 24-foot garage footprint, and 20- x 20-foot for patios and 20- x 5-foot walkways results in 500+1,000+528+500=2,528 square feet.

[56] Assuming a 2,000-square-foot two-story house results in 1,000-square-foot foundation.

[57] 2,528 square feet results in an average of 5,802 square feet of landscaping from the 8,330 square feet.

Multi-family outdoor demands also follow the MWELO calculations. The lot for the multi-family structure is 3.4 acres with 25 units. A 60-foot by 665-foot strip is proposed to be left unirrigated along the road, leaving approximately 4,326 square feet per multi-family unit. It is assumed that these units would be an average of 1,000 square feet with 1,000 square feet of hardscape per unit, which includes parking and a portion of other paved surfaces. This leaves 2,326 square feet of landscaping per DU as a conservative estimate. Using the MWELO maximum irrigation rate an estimated 0.15 AF of water per year per DU results for outdoor multi-family use (see Table IV.K-8).

Additional landscaping is planned for the project along the streets of the development. Figure III-7, Landscaping Plan from this Draft EIR places a planter along all of the streets in the subdivision. Using the dimensions from Sheet TM1 of the Tentative Map, approximately 6,000 feet of planters are assumed along the streets. Due to the curves in the streets and the varying widths of the planter, it appears that the planter is an average of 5 feet wide. This amounts to approximately 30,000 square feet of landscaping throughout the development that is not included on the individual parcels. These planters are to be planted with trees and native grasses per the Hunter Subdivision Street Tree Plan. Using the MWELO demand as the conservative irrigation estimate, the community landscaping will amount to a maximum of 1.93 AF/year. If equally allocated among the 87 units of the proposed project, the proposed streetscaping would add 0.02 AF per unit.

(1) Total Demands

The total estimated water demands for the proposed project are summarized in this section. The total demand includes both the residential and community landscaping needs, but also the non-revenue water that is usually not metered at customer locations, but necessary as part of delivering water to the customers. Non-revenue water is discussed below.

The residential and community landscaping demands for the project, using the demand factors developed in the previous section, are provided in Table IV.K-8.

Non-Revenue Water Demands. The demand factors presented earlier in this section represent the demand for water at each customer category. To fully represent the demand of the Proposed Project, the demands of non-revenue water also need to be included. Often, non-revenue water represents water that is lost due to system leaks, or potentially used in un-metered activities such as fire protection, fire hydrant flushing, construction water, unauthorized connections and inaccurate meters. In most instances, the predominant source of non-revenue water is from system losses. For purposes of estimating future demand from new connections, the non-revenue water value is assumed to be 10 percent of the total demand – an objective recognized by the American Water Works Association and the California Urban Water Conservation Council as achievable. Though this value may be reduced due to the completely new

TABLE IV.K-8 TOTAL PROJECT WATER DEMAND PER YEAR (AF/YEAR)

Unit Type	Indoor Demand Per Unit[b]	Outdoor Demand Per Unit[b]	Number of Units[a]	Total Demand
Single-Family	0.144	0.373	40	20.68
Single-Family with Granny Unit	0.216	0.373	11	6.48
Multi-Family	0.144	0.150	25	7.34
Community Landscaping	-	0.022	87	1.93
Total				**36.43**

[a] The number of units is from the project description
[b] Demands are a result of the meter study.
Source: Tully & Young, Inc. 2012.

infrastructure, this represents a conservatively high estimate early in the project but a realistic estimate into the future. See Table IV.K-9 for estimate with non-revenue.

TABLE IV.K-9 PROJECTED WATER USE WITH NON-REVENUE (AF/YEAR)

Water Demand[a]	10% Loss[b]	Total
36.43	3.64	40.08

[a] Tully &Young, Inc.'s calculations
[b] Standard loss target.
Source: Tully & Young, Inc. 2012.

Projected Potable Versus Landscape Water Demands. A unique feature of this proposed project is the separation of indoor and outdoor demands. The existing on-site well, previously used for agricultural purposes, has the capacity to serve more water than is needed on-site. This well will be used to serve the landscaping demands of the project through a separate pipe system delivering non-potable water to each residential lot and the community landscaped areas. The demand on the City's treatment and distribution system will be limited to the indoor demands. Table IV.K-10 compares the projects water demands to be placed on the City vs. the on-site well.

TABLE IV.K-10 POTABLE VS. OUTDOOR WATER DEMANDS (AF/YEAR)

Unit Type	Indoor	Outdoor
Single-Family	5.76	14.92
Single-Family with Granny Unit	2.38	4.10
Multi-Family	3.60	3.75
Community Landscaping	-	1.93
Total	**11.74**	**24.70**

Source: Tully & Young, Inc. 2012.

Impact SVCS-1: The proposed project could place an added demand on the City's potable water resources of approximately 12 acre-feet per year (AF/year) (the analysis estimated 11.74 AF/year). Non-potable water for outdoor use would be supplied by the existing on-site well and would not draw from City supplies. (S)

Mitigation Measure SVCS-1: The project must be water-neutral (from the City-delivered water system) through any combination of on-site water conservation measures and/or off-site retrofitting and/or well water. Water neutrality shall be demonstrated to the St. Helena City Engineer in a quantitative water analysis of the project prior to the issuance of the first building permit.

The proposed project shall offset the 12 AF of added demand by installing City-approved Ultra-low-flush (ULF) toilets and associated water-efficient fixtures in a sufficient number of existing homes or nonresidential properties having toilets that use greater than 1.6 gallons per flush (Municipal Code 13.12.050). As detailed in the City's ordinance, if the Proposed Project elects to retrofit existing residential units, the number (rounded to the next unit) of retrofits will be based on the following:

- Single-family detached = 5 per unit
- Apartment (three units or more) = 3.5 per unit
- Guest home/second DU = 3.5 per unit

No water service will be provided to the Proposed Project unless it can be shown to the satisfaction of the St. Helena City Engineer to be water neutral or until the calculation of the City's 5-year average water use drops to or below 1,950 AF, per the Water Conservation and Emergency Shortage Ordinance.

Through the full offset of 12 acre-feet of potable demand, the proposed project's impact on the City's water system will be reduced to less than significant, requiring no construction of additional facilities or expansion of existing facilities. (LTS)

L. TRAFFIC AND TRANSPORTATION

The purpose of this section is to (1) describe Existing 2011 harvest conditions and Year 2030 (buildout) conditions for traffic and transportation in the project area, (2) evaluate traffic and circulation impacts due to project implementation, and (3) recommend mitigations to reduce significant impacts.

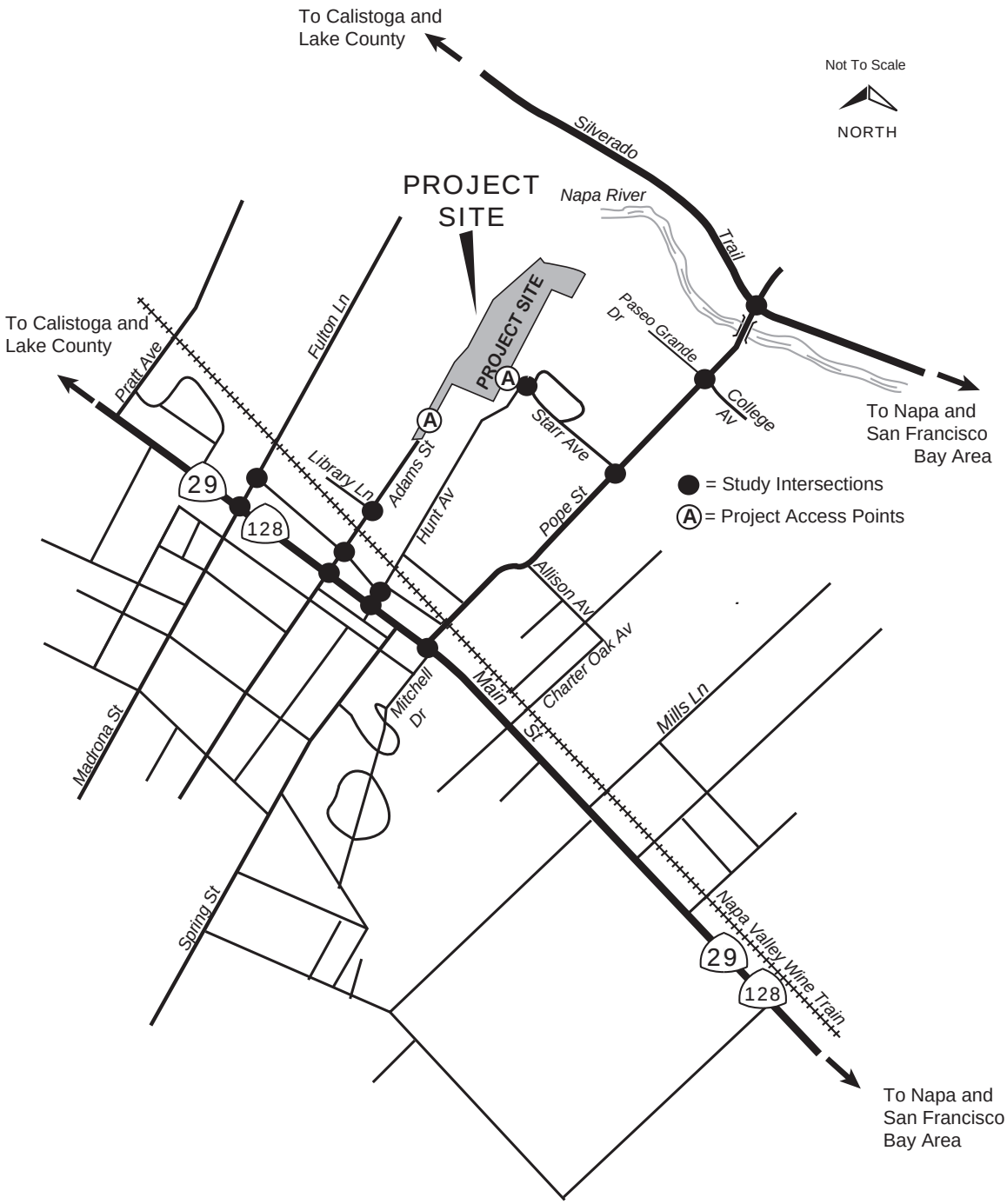
The project site is located east of Adams Street and north of Hunt Avenue, and would be accessed via a proposed eastward extension of Adams Street and a proposed northern extension of Starr Avenue (see Figure IV.L-1 and Figure IV.L-2). A portion of the site is an existing vineyard, and the remainder of the site is undeveloped. The site is bounded by single- and multi-family homes to the south and southwest, a mobile home park to the southeast, a flood control project to the east, and a City-owned parcel providing access to the flood control project to the north.

The traffic study methodology and analysis consisted of:

- Conducting November 2011 traffic counts at 11 key intersections during the weekday AM and PM peak commute periods, and Saturday PM peak period. Counts were then factored to fall harvest conditions in order to present peak season traffic conditions.
- Determining Year 2030 (Without Project) traffic volumes, based on traffic generated by planned and approved development in the City of St. Helena by year 2020, plus an annual growth rate to year 2030.
- Projecting weekday AM and PM peak hour and Saturday PM peak hour trip generation associated with the proposed project.
- Distributing project traffic to the eleven analysis intersections in St. Helena.
- Determining whether traffic from the proposed project would result in significant impacts for Existing + Project and Year 2030 + Project operating conditions at the intersections analyzed.
- Determining 95th percentile queuing in the left turn lanes at intersections along State Route 29 (SR 29) (Main Street) and on the Silverado Trail that would be utilized by project traffic.
- Reviewing past three years of accident data at major intersections.
- Identifying measures to mitigate project impacts to a less-than-significant level.

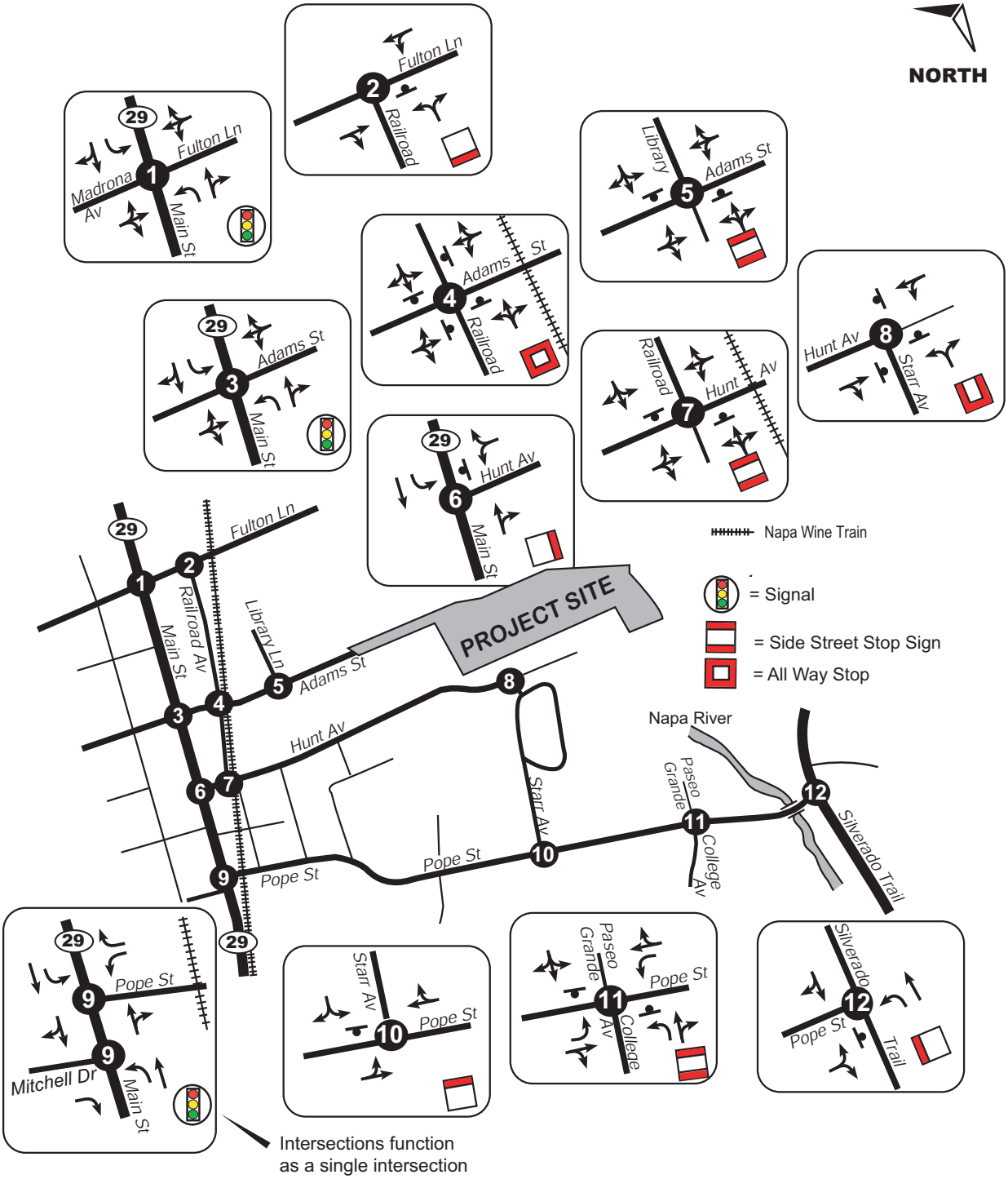
1. Setting

Both existing and physical regulatory setting relevant to traffic and transportation is described below. A description of the methods utilized to assess transportation impacts is also provided.



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-1
Hunter Residential Subdivision Project Draft EIR
Area Map



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-2

Hunter Residential Subdivision Project Draft EIR

Existing Lane Geometrics and Intersection Control

a. Methodology and Standards

The following section describes standard methods for measuring traffic impacts.'

(1) Intersection Operation Analysis

Transportation engineers and planners commonly use a grading system called level of service (LOS) to measure and describe the operational status of the local roadway network. Level of service is a description of the quality of a roadway facility's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). Intersections, rather than roadway segments between intersections, are almost always the capacity controlling locations for any circulation system.

(2) Signalized Intersections

For signalized intersections, the 2000 Highway Capacity Manual[1] methodology was utilized. With this methodology, operations are defined by the level of service and average control delay per vehicle (measured in seconds) for the entire intersection. For a signalized intersection, control delay is the portion of the total delay attributed to traffic signal operation. This includes delay associated with deceleration, acceleration, stopping, and moving up in the queue. Table IV.L-1 summarizes the relationship between delay and level of service for signalized intersections.

(3) Unsignalized Intersections

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the 2000 Highway Capacity Manual[2] methodology for unsignalized intersections was utilized. For side-street stop-controlled intersections, operations are defined by the level of service and average control delay per vehicle (measured in seconds), with delay reported for the stop sign controlled approaches or turn movements, although overall delay is also typically reported for intersections along state highways. For all-way stop-controlled intersections, operations are defined by the average control delay for the entire intersection (measured in seconds per vehicle). The delay at an unsignalized intersection incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. Table IV.L-2 summarizes the relationship between delay and level of service for unsignalized intersections.

(4) Intersection Level of Service – Minimum Acceptable Operation

The City of St. Helena's 1993 General Plan establishes two guiding policies (Policies 5.4.1 and 5.4.2) on traffic service standards. Policy 5.4.1 states that

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[1] Transportation Research Board, National Research Council. *2000 Highway Capacity Manual.*

[2] Transportation Research Board, National Research Council. *2000 Highway Capacity Manual.*

TABLE IV.L-1 SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0

Source: 2000 Highway Capacity Manual (Transportation Research Board).

TABLE IV.L-2 UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Little or no delays	≤ 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded (for an all-way stop), or with approach/turn movement capacity exceeded (for a side street stop controlled intersection)	> 50.0

Source: 2000 Highway Capacity Manual (Transportation Research Board).

LOS C shall be maintained at all signalized intersections in St. Helena, except along Main Street, where service level LOS D shall be permitted. Exceptions to this policy are that lower service levels shall be permitted at any location where the existing service level does not meet this standard. In these locations, the service level shall not be lower than the existing traffic conditions indicated in the General Plan. The City Council may also allow an exception to this policy if it finds overriding circumstances that make maintenance of the policy impractical or infeasible. There is no established level of service standard for unsignalized intersections, however, General Plan Policy 5.4.2 states that LOS C is a goal at stop-sign-controlled intersections.

The City of St. Helena's Draft General Plan Update provides expanded detail on traffic service standards and thresholds of significance related to project impact evaluation. These standards are provided as part of the analysis in Section 2, Impacts and Mitigation Measures.

Caltrans' Guide for the Preparation of Traffic Impacts Studies[3] is intended to provide a consistent basis for evaluating traffic impacts to state facilities. Caltrans endeavors to maintain a target level of service at the transition between LOS C and LOS D. On State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target level of service.

(5) Signal Warrant Analysis

Traffic signals are used to provide an orderly flow of traffic through an intersection. Many times they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds block crossing or turn movements. They do not, however, increase the capacity of an intersection (i.e., increase the overall intersection's ability to accommodate additional vehicles) and, in fact, often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at inappropriate locations.

There are nine possible tests for determining whether a traffic signal should be considered for installation. These tests, called "warrants", consider criteria such as actual traffic volume, pedestrian volume, presence of school children, and accident history. The intersection volume data together with the available collision histories were compared to warrants contained in the Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, 2010, California Supplement, which has been adopted by the State of California as a replacement for Caltrans Traffic Manual. Section 4C of the MUTCD provides

[3] California Department of Transportation, 2002. *Caltrans Guide for the Preparation of a Traffic Impact Studies*.

guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the MUTCD, satisfaction of one or more warrants does not necessarily require immediate installation of a traffic signal. It is merely an indication that the local jurisdiction should begin monitoring conditions at that location and that a signal may ultimately be required.

Warrant 3, the peak hour volume warrant, is often used as an initial check of signalization needs since peak hour volume data is typically available and this warrant is usually the first one to be met. Warrant 3 is based on a curve and takes only the hour with the highest volume of the day into account. For intersections in rural locations (with local area population less than 10,000 people or where the posted speed limit or 85th percentile speed on the uncontrolled intersection approaches is greater than 40 miles per hour) a 70 percent warrant is applied. The regular and 70 percent warrants are typically referred to as the urban and rural peak hour warrants. Please see the Appendix E for the warrant charts.

(6) Vehicle Queue Length Analysis

There are four intersections along SR 29 where southbound traffic could potentially conduct a left turn to reach the project site (three signalized and one unsignalized). In addition, northbound traffic on Silverado Trail would turn left at the unsignalized Pope Street intersection to access the project area. The intersection analysis software was used to determine vehicle queue lengths for each signalized intersection. At the other two locations, specialized formula developed for unsignalized intersections was utilized.

The standard employed in this analysis is to determine whether the 95th percentile vehicle queue can be accommodated within the available left turn lane storage.[4] This standard is employed in order to be consistent with the standard routinely requested by Caltrans.[5]

(7) Analysis of Accident Data

Three years of accident data was obtained from the California Highway Patrol for the major study intersections. Any study intersection with repetitive types of accidents, or intersections with more than five accidents of a similar type in a single year are analyzed for possible impacts due to project traffic.

[4] The 95th percentile vehicle queue is the queue that is exceeded in length 5 percent of the time.

[5] Department of Transportation (Caltrans) District 4, Office of Highway Operations.

b. Existing Traffic and Transportation Conditions

The existing and physical conditions related to traffic and transportation are described below.

(1) Roadway Network

Regional access to the project site vicinity is provided by SR 29 (Main Street) and Silverado Trail. Streets that provide access to the project site and nearby vicinity include the east-west streets of Fulton Lane- Madrona Avenue, Adams Street, Hunt Avenue, and Pope Street, and the north-south streets of SR 29 (Main Street), Railroad Avenue, Library Lane, and Starr Avenue. Each roadway is briefly described below, while a schematic presentation of intersection approach lanes and control is shown in Figure IV.L-2.

State Route 29 (SR 29) is a 2- to 4-lane lane regional arterial roadway serving Napa County from Vallejo (south), to Lake County (north). Within the City of St Helena, the roadway has two lanes, with left turn lanes provided at most intersections. The highway is St. Helena's Main Street, and is also designated State Route 128 through St. Helena. SR 29 has parallel parking on both sides of the street, and is the primary travel route within St Helena, as well as for traffic traveling through Napa County. In St. Helena's downtown, SR 29 has signalized intersections with Fulton Lane, Adams Street, and Pope Street. South of Pope Street, the Napa Wine Train rail line runs just east and parallel to SR 29. Traffic flow in downtown St. Helena can be stop and go or slow during weekday and Saturday peak traffic periods due to parallel parking maneuvers, pedestrian traffic, and side street traffic. This, in turn, creates excessive delays and long queues for side street stop sign controlled traffic.

Fulton Lane – Madrona Avenue is a two-lane, east-west street serving residential and commercial properties. It is designated Fulton Lane to the east of SR 29 and Madrona Avenue to the west of SR 29. At its "tee" intersection with Railroad Avenue, the Railroad Avenue approach is stop sign controlled. Fulton Lane "dead ends" at residential properties east of Railroad Avenue.

Adams Street is a two-lane, east-west street in St. Helena, and is a significant connector street linking the east and west sides of St. Helena. East of its signalized intersection with SR 29, Adams Street has an all-way stop controlled intersection with Railroad Avenue, and at its intersection with Library Lane and a private commercial driveway, the side street approaches (Library Lane and the driveway) are stop sign controlled. East of SR 29, Adams Street provides access to the City library, several banks, and the north driveway to the Safeway shopping center. West of SR 29, Adams Street provides access to a network of streets serving several school as well as churches and residential and commercial properties. Adams Street dead ends just west of the Hunter Subdivision Project site.

Hunt Avenue is a two-lane, variable width, east-west street serving commercial properties in the downtown, including the south access to the Safeway shopping center served on the north end by Adams Street. At its intersection with Railroad Avenue, the Railroad Avenue approach is stop sign controlled. Hunt and Starr Avenues intersect approximately 175 feet south of the southern boundary of the Hunter Subdivision Project site. The Hunt Avenue/Starr Avenue intersection is all-way (three-way) stop sign controlled. Hunt Avenue also had a stop sign controlled single lane approach to SR 29 (Main Street).

Pope Street is a two-lane east-west roadway connecting SR 29 and downtown St Helena to Silverado Trail. At SR 29, Pope Street is offset by about 75 feet from Mitchell Drive; however, these streets have coordinated signal controls and function as a single intersection. The Pope Street/Starr Avenue intersection is stop sign controlled on the Starr Avenue approach. At its "tee" intersection with Silverado Trail, the Pope Street approach is stop sign controlled. Pope Street provides access to residential properties and public park, as well as the Napa College Upper Valley Campus and the partially built campus of the St Helena Arts and Montessori Farm School; both schools are located south of Pope Street at College Avenue. The Pope Street bridge, a very narrow, two-lane, historic bridge, spans a creek channel on the Pope Street approach to Silverado Trail.

Railroad Avenue is a two-lane, north-south street, extending between Fulton Lane and Hunt Avenue. The Napa Wine Train railroad tracks that extend north-south through St. Helena run parallel to the east side of Railroad Avenue. Railroad Avenue serves government buildings, including the City Hall, Fire Station and Teen Center, as well as residential and commercial properties in downtown St. Helena.

Library Lane is a two-lane, north-south street extending to a dead end one block north of Adams Street. It serves the City Library and Silverado Museum as well as commercial properties.

Starr Avenue is a wide, two-lane, north-south street serving residential properties. It extends south from an all-way stop intersection with Hunt Avenue to intersect Pope Street. The Starr Avenue southbound approach is stop sign controlled. Starr Avenue has Class II (signed and striped) bicycle lanes on both sides.

Silverado Trail is a north-south arterial roadway that runs parallel to SR 29 on the east side of St Helena. It extends between Soscol Avenue in the City of Napa (to the south), and Lake County Highway in the City of Calistoga (to the north).

(2) Traffic Volumes

Weekday AM peak period (7:00-9:00), PM peak period (3:30-5:30), and Saturday PM peak period (3:00 – 6:00) traffic counts were conducted for Crane

Transportation Group, the City's transportation consultant for this EIR, at 11 analysis intersections on November 15 and 19, 2011 when all local schools and the college were in full session. Analysis locations were selected by the City of St. Helena. The weather was clear and mild. Peak hours at intersections varied by location. The weekday AM peak hour occurred at most intersections from 7:45-8:45 or 8:00-9:00 a.m., while the weekday PM peak hour occurred between 3:30 and 5:30 p.m. On Saturday, the peak hour occurred between 3:00 and 4:45 p.m.

November counts were seasonally adjusted to the harvest (crush) season, as harvest (October) volumes have been shown to be higher than other times of the year, based upon seasonal traffic count data for SR 29. Resultant harvest weekday AM and PM peak hour and Saturday PM peak hour volumes are shown in Figures IV.L-3, IV.L-4, and IV.L-5.

(3) Existing (Without Project) Intersection Operation

Tables IV.L-3, IV.L-4 and IV.L-5 show that during the weekday AM peak hour and Saturday PM peak hour, existing operating conditions (levels of service) at intersections are acceptable at all locations.

During the weekday PM peak hour, three side street stop controlled intersections experience unacceptable delay: SR 29/Hunt Avenue, the Hunt stop sign controlled approach operates at LOS E with 41.1 seconds of delay; at Hunt Avenue/Railroad Avenue, the Railroad Avenue stop sign controlled approach operates unacceptably at LOS D with 30.7 seconds of delay; and at Pope Street/Silverado Trail, the stop sign controlled Pope Street approach operates unacceptably at LOS F, with 112.0 seconds of delay.

(4) Signal Warrant Analysis

Table IV.L-6 shows that volumes at the Pope Street/Silverado Trail intersection currently meet Rural Signal Warrant #3 criteria levels during the weekday AM and PM peak hours as well as during the Saturday PM peak hour.

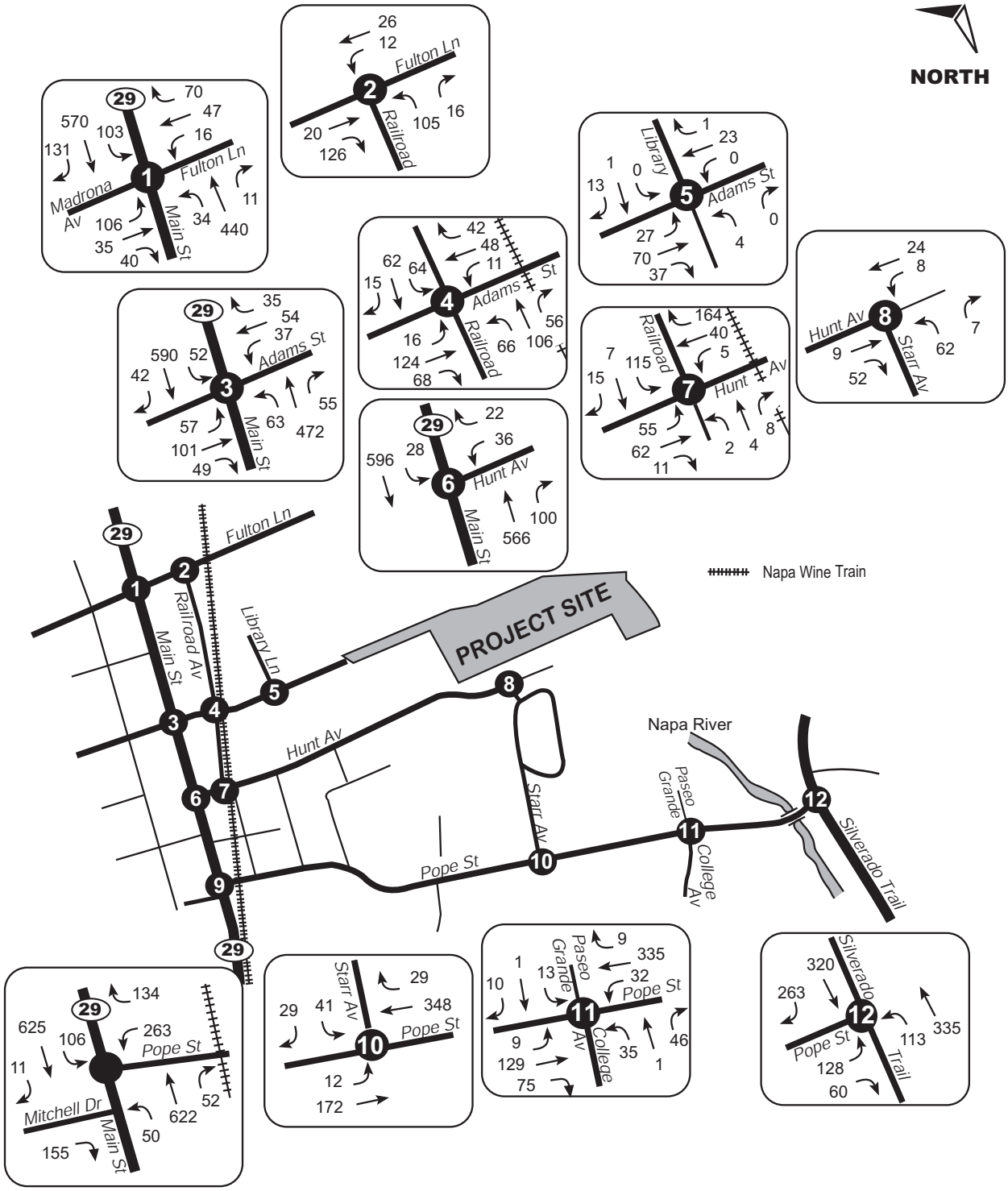
(5) Multi-Way Stop Control Warrant Analysis – College Avenue/Pope Street/Paseo Grande Intersection

The California MUTCD multi-way stop control warrant analysis criteria indicate that peak hour volumes at the College Avenue/Pope Street/Paseo Grande intersection would not meet the multi-way stop warrant for any analysis time period.

(6) Vehicle Queues

Tables IV.L-7, IV.L-8, and IV.L-9 show that currently, the following left turn lanes have observed and theoretically predicted 95th percentile queues exceeding available storage:

- Southbound SR 29 at Hunt Avenue: Saturday PM peak hour.
- Southbound SR 29 at Pope Street: AM and PM peak hours.

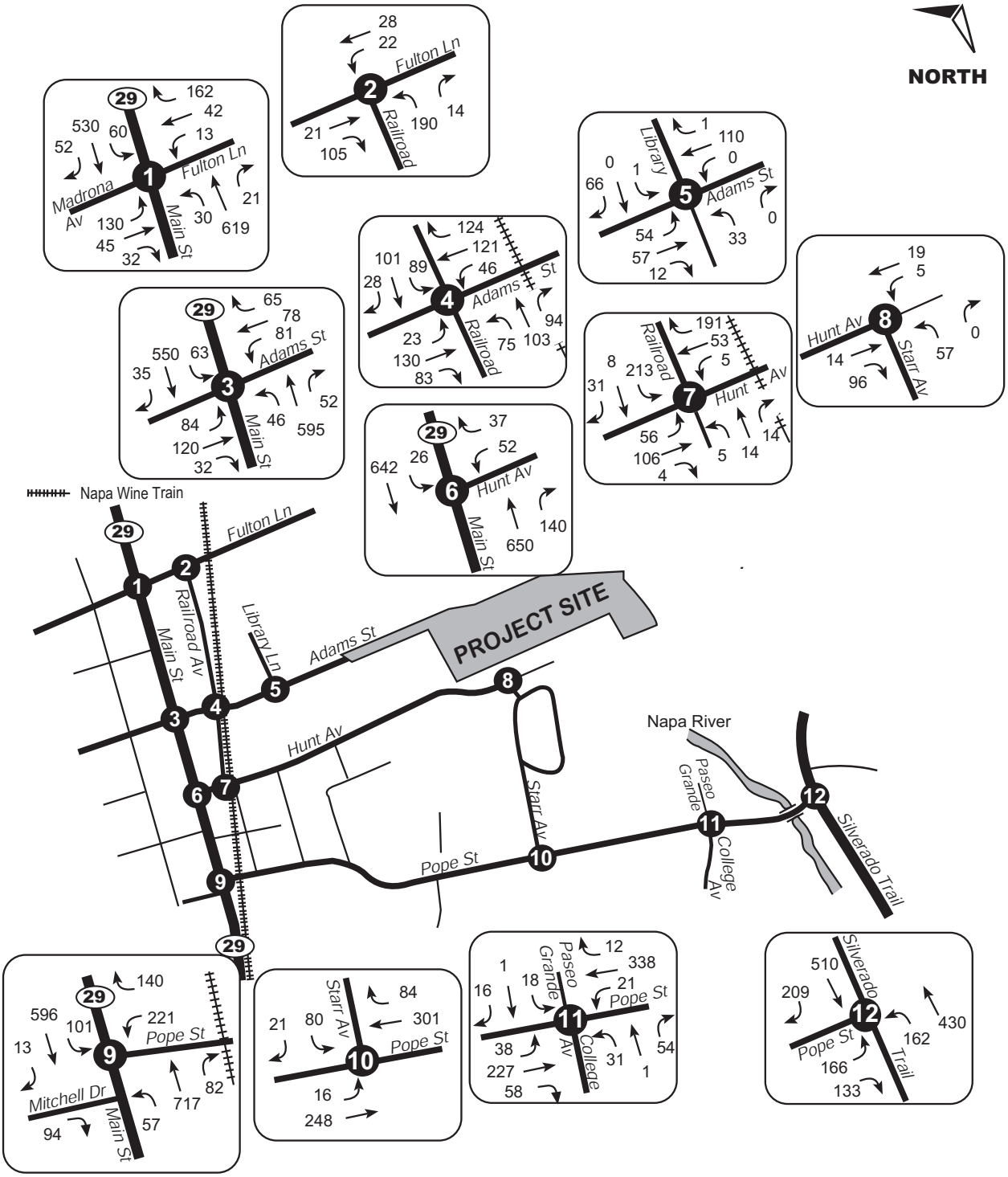


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-3

Hunter Residential Subdivision Project Draft EIR

Existing Harvest Weekday AM Peak Hour Volumes

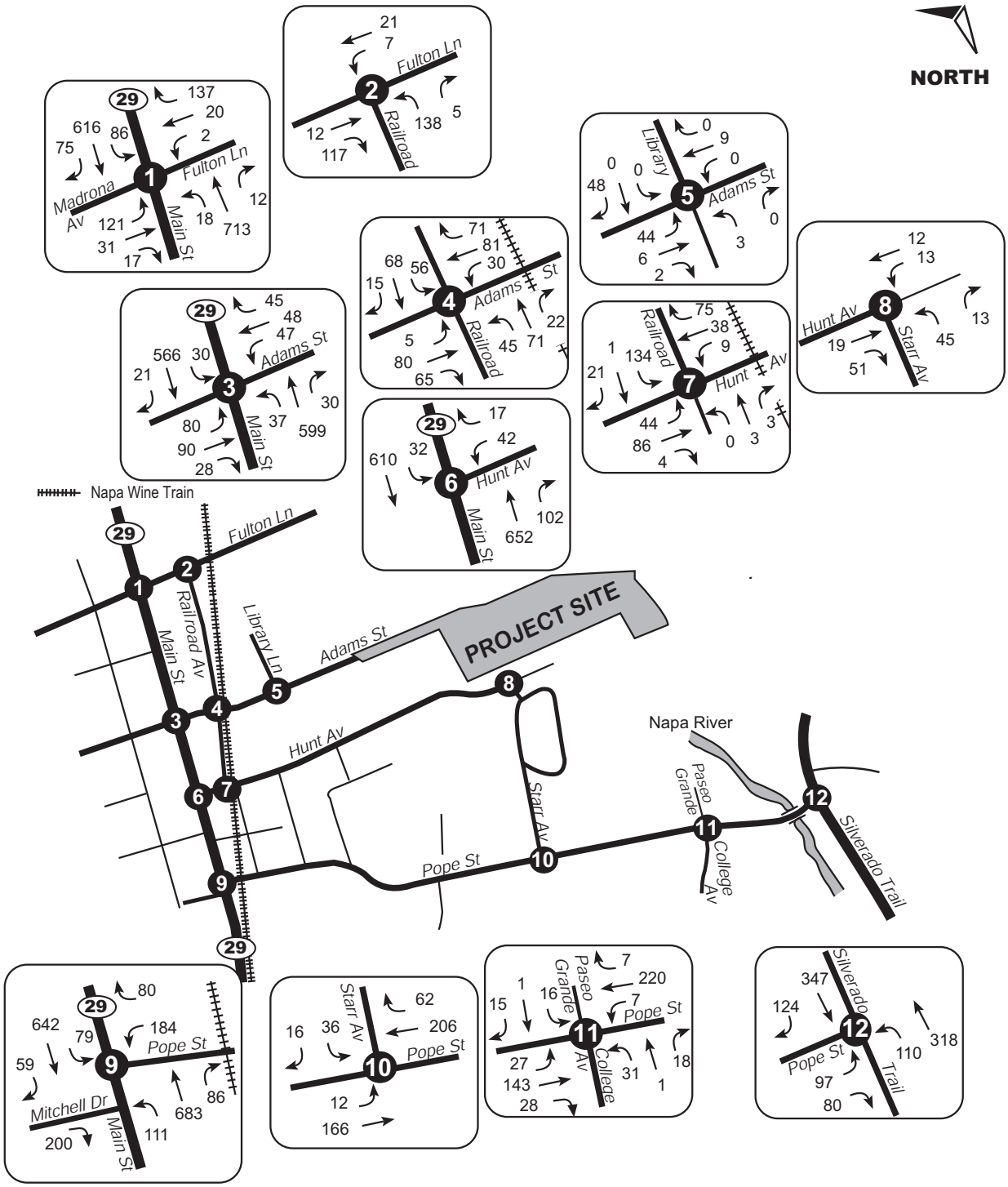


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-4

Hunter Residential Subdivision Project Draft EIR

Existing Harvest Weekday PM Peak Hour Volumes



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-5

Hunter Residential Subdivision Project Draft EIR

Existing Harvest Saturday PM Peak Hour Volumes

TABLE IV.L-3 INTERSECTION LEVEL OF SERVICE: WEEKDAY AM PEAK HOUR

Intersection	Existing (Harvest 2011)		Year 2030	
	Existing	Existing With Project	Year 2030 Without Project	Year 2030 With Project
1. Fulton Lane/SR 29 (signal control)	B-13.9[a]	B-14.1	B-15.7	B-16.1
2. Fulton Lane/Railroad Avenue (side street stop sign control)	B-10.2[b]	B-10.0	B-10.4	B-10.5
3. Adams Street/SR 29 (signal control)	C-27.3[a]	C-27.6	C-33.1	C-33.6
4. Adams Street/Railroad Avenue (all-way stop control)	A-9.8[c]	A-9.7	B-11.5	B-11.5
5. Adams Street/Library Avenue (side street stop sign control)	A-9.9/ A-8.7[d]	B-10.1/ A-9.4	B-10.1/ A-8.9	B-10.2/ A-9.6
6. Hunt Avenue/SR 29 (side street stop sign control)	C-21.7[e]	C-21.9	D-32.0	D-32.5
7. Hunt Avenue/Railroad Avenue (side street stop sign control)	B-10.7/ B-14.0[f]	B-10.6/ B-13.3	B-11.3/ C-17.5	B-11.2/ C-15.8
8. Hunt Avenue/Starr Avenue (all-way stop sign control)	A-7.3[c]	A-7.6	A-7.6	A-7.8
9. Pope Street/SR 29 (signal control)	D-38.7[a]	D-39.5	D-53.2	D-55.2
10. Pope Street/Starr Avenue (side street stop sign control)	B-13.4[g]	B-13.8	C-17.6	C-18.4
11. Pope Street/College Avenue/ Paseo Grande	C-16.4*/ B-14.3[h]	C-16.6 B-14.3	C-21.4/ C-16.6	C-21.7/ C-16.8
12. Pope Street/Silverado Trail (side street stop sign control)	C-23.8[i]	C-24.2	**E-35.7**	**E-36.6**

Note: **Bold** typeface indicates unacceptable level of service.
* Northbound left/Southbound approach.
[a] Signalized intersection level of service– average vehicle control delay (in seconds).
[b] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound Railroad Avenue approach.
[c] All-way stop controlled intersection level of service– average vehicle control delay (in seconds).
[d] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Library Avenue approach.
[e] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – westbound Hunt Avenue approach to SR 29.
[f] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Railroad Avenue approach.
[g] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –southbound Starr Avenue approach.
[h] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound College approach/southbound Paseo Grande approach.
[i] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –eastbound Pope Street approach.
Source: Crane Transportation Group, 2012. *Year 2000 Highway Capacity Manual Operations Methodology*.

TABLE IV.L-4 INTERSECTION LEVEL OF SERVICE: WEEKDAY PM PEAK HOUR

	Existing (Harvest 2011)		Year 2030	
Intersection	Existing	Existing With Project	Year 2030 Without Project	Year 2030 With Project
1. Fulton Lane/SR 29 (signal control)	B-17.4[a]	B-17.5	C-22.1	C-22.4
2. Fulton Lane/Railroad Avenue (side street stop sign control)	B-11.7[b]	B-11.8	B-12.8	B-12.9
3. Adams Street/SR 29 (signal control)	C-32.8[a]	C-33.3	**E-70.1**	**E-72.7**
4. Adams Street/Railroad Avenue (all-way stop control)	C-13.5[c]	C-13.9	**D-31.5**	**E-36.3**
5. Adams Street/Library Avenue (side street stop sign control)	B-12.3/ A-9.5[d]	B-13.4/ B-10.1	B-12.9/ A-9.7	B-13.5/ B-10.1
6. Hunt Avenue/SR 29 (side street stop sign control)	**E-41.1**[e]	**E-42.0**	**F-90.7**	**F-94.1**
7. Hunt Avenue/Railroad Avenue (side street stop sign control)	B-13.3/ **D-30.7**[f]	B-13.2/ **D-26.4**	C-15.5/ **F-61.1**	C-15.3/ **E-47.5**
8. Hunt Avenue/Starr Avenue (all-way stop sign control)	A-7.3[c]	A-7.6	A-7.7	A-8.2
9. Pope Street/SR 29 (signal control)	D-40.1[a]	D-40.3	**F-80.4**	**F-83.9**
10. Pope Street/Starr Avenue (side street stop sign control)	C-15.7[g]	C-16.5	C-21.1	C-23.1
11. Pope Street/College Avenue	C-19.9 C-16.2[h]	C-19.9/ C-16.4	D-29.9 C-20.7	D-31.0 C-21.1
12. Pope Street/Silverado Trail (side street stop sign control)	**F-111.7**[i]	**F-121.7**	**F-278.9**	**F-297.3**

Note: **Bold** typeface indicates unacceptable level of service.
[a] Signalized intersection level of service– average vehicle control delay (in seconds).
[b] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound Railroad Avenue approach.
[c] All-way stop controlled intersection level of service– average vehicle control delay (in seconds).
[d] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Library Avenue approach.
[e] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – westbound Hunt Avenue approach to SR 29.
[f] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Railroad Avenue approach.
[g] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –southbound Starr Avenue approach.
[h] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound College approach/southbound Paseo Grande approach.
[i] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –eastbound Pope Street approach.
Source: Crane Transportation Group, 2012. *Year 2000 Highway Capacity Manual Operations Methodology*.

TABLE IV.L-5 INTERSECTION LEVEL OF SERVICE: SATURDAY PM PEAK HOUR

	Existing (Harvest 2011)		Year 2030	
Intersection	Existing	Existing With Project	Year 2030 Without Project	Year 2030 With Project
1. Fulton Lane/SR 29 (signal control)	B-14.9[a]	B-15.0	C-22.4	C-24.0
2. Fulton Lane/Railroad Avenue (side street stop sign control)	A-10.0[b]	A-10.0)	B-10.5	B-10.5
3. Adams Street/SR 29 (signal control)	C-27.9[a]	C-28.3	D-38.0	D-39.1
4. Adams Street/Railroad Avenue (all-way stop control)	A-9.1[c]	A-9.2	B-10.8	B-10.9
5. Adams Street/Library Avenue (side street stop sign control)	A-10.0/ A-8.7[d]	B-10.2/ A-9.0	A-10.0/ A-8.8	B-10.3/ A-9.1
6. Hunt Avenue/SR 29 (side street stop sign control)	D-33.6[e]	D-34.3	**F-56.3**	**F-58.2**
7. Hunt Avenue/Railroad Avenue (side street stop sign control)	B-11.6/ C-16.5[f]	B-11.5/ C-15.6	B-12.0/ C-19.4	B-11.9/ C-17.3
8. Hunt Avenue/Starr Avenue (all-way stop sign control)	A-7.2[c]	A-7.5	A-7.3	A-7.6
9. Pope Street/SR 29 (signal control)	D-36.8[a]	D-37.5	**E-61.3**	**E-63.7**
10. Pope Street/Starr Avenue (side street stop sign control)	B-11.8[g]	B-12.2	B-12.4	B-12.8
11. Pope Street/College Avenue/ Paseo Grande	B-13.5/ B-11.8[h]	B-13.8/ B-11.9	B-14.8/ B-12.6	C-15.0/ B-12.7
12. Pope Street/Silverado Trail (side street stop sign control)	C-19.2[i]	C-19.7	C-24.3	D-25.2

Note: **Bold** typeface indicates unacceptable level of service.
[a] Signalized intersection level of service– average vehicle control delay (in seconds).
[b] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound Railroad Avenue approach.
[c] All-way stop controlled intersection level of service– average vehicle control delay (in seconds).
[d] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Library Avenue approach.
[e] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – westbound Hunt Avenue approach to SR 29.
[f] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound driveway approach/southbound Railroad Avenue approach.
[g] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –southbound Starr Avenue approach.
[h] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) – northbound College approach/southbound Paseo Grande approach.
[i] Side street stop sign controlled intersection level of service – average vehicle control delay (in seconds) –eastbound Pope Street approach.
Source: Crane Transportation Group, 2012. *Year 2000 Highway Capacity Manual Operations Methodology.*

TABLE IV.L-6 SIGNAL WARRANT EVALUATION: DO VOLUMES MEET PEAK HOUR SIGNAL WARRANT #3* CRITERIA LEVELS?

	Weekday AM Peak Hour				Weekday PM Peak Hour				Saturday PM Peak Hour			
	Existing		Year 2030		Existing		Year 2030		Existing		Year 2030	
Intersection	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
Fulton Lane/Railroad Ave.	No	No	No	No	No	No	No	No	No	No	No	No
Adams St./Railroad Ave.	No	No	No	No	No	No	No	No	No	No	No	No
Adams St./Library Ave.	No	No	No	No	No	No	No	No	No	No	No	No
Hunt Ave./SR 29	No	No	No	No	No	No	No	No	No	No	No	No
Pope St./Starr Ave.	No	No	No	No	No	No	No	No	No	No	No	No
Pope St./College Ave./ Paseo Grande	No	No	No	No	No	No	No	No	No	No	No	No
Pope St./Silverado Trail	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes

* 2003 Manual on Uniform Traffic Control Devices, Warrant #3. Federal Highway Administration.
Source: Crane Transportation Group, 2012.

TABLE IV.L-7 95TH PERCENTILE INTERSECTION QUEUE LENGTH IN FEET: WEEKDAY AM PEAK HOUR

		Existing (Harvest 2011)		Year 2030	
Intersection	**Available Queuing Distance (Feet)**	**Existing (Feet)**	**Existing Plus Project (Feet)**	**Without Project (Feet)**	**With Project (Feet)**
1. Fulton Lane/SR 29 SR 29 SB Left Turn	85	76	78	117	120
3. Adams St./SR 29 SR 29 SB Left Turn	200+ Center Two-Way Left Turn Lane	74	88	115	115
6. Hunt Ave./SR 29	75	75	75	100	100
9. Pope St./SR 29 SR 29 SB Left Turn to Pope St.[a]	271[b]	314	317	426	431
12. Pope St./Silverado Trail Silverado Trail NB Left Turn to Pope St.	60	125	125	150	150

[a] There is an existing SR 29 (Main Street) continuous left turn lane between the Pope Street and Spring Street intersections. It has 340 feet of storage, consisting of a single left turn lane on the southbound SR 29 (Main Street) approach to Pope Street, transitioning northward as a center two-way turn lane, which then transitions into a single northbound left turn lane at Spring Street. The 340-foot-long queuing distance must accommodate vehicles waiting to make southbound left turns from SR 29 (Main Street) to Pope Street and vehicles waiting to make northbound left turns from SR 29 (Main Street) to Spring Street.

[b] Observations of AM and PM peak hour conditions during traffic count days indicated a maximum queue of three left-turning vehicles on the southbound SR 29 (Main Street) approach to Pope Street, and a maximum queue of three left-turning vehicles on the northbound approach to Spring Street. At the Spring Street intersection, these maximum back-ups occurred twice in 40 signal cycles during the AM peak hour, and once in 40 signal cycles during the PM peak hour. During the majority of AM and PM peak hour signal cycles, a maximum of 1 or 2 vehicles were observed to queue at this location. The maximum of three vehicles queued to make northbound SR 29 (Main Street) left turns to Spring Street would require 69 feet of the total 340-foot storage, leaving 271 feet of storage for southbound SR 29 (Main Street) left turns to Pope Street.

Source: Crane Transportation Group, 2001. *Traffix LOS Analysis, 95th Percentile Queue Length; and Estimation of Maximum Queue Lengths at Unsignalized Intersections* by John T. Gard, ITE Journal, November.

- Northbound Silverado Trail at Pope Street: Weekday AM and PM peak hours and Saturday PM peak hour.

(7) Analysis of Accident Data

Three years of traffic accident data were provided by the California Highway Patrol for the major intersections along SR 29 as well as for Pope Street/Silverado Trail. As detailed in Appendix E, total reported accidents at each location were

TABLE IV.L-8 95TH PERCENTILE INTERSECTION QUEUE LENGTH IN FEET – WEEKDAY PM PEAK HOUR

		Existing (Harvest 2011)		Year 2030	
Intersection	**Available Queuing Distance (Feet)**	**Existing (Feet)**	**Existing Plus Project (Feet)**	**Without Project (Feet)**	**With Project (Feet)**
1. Fulton Lane/SR 29 SR 29 SB Left Turn	85	60	65	163	178
3. Adams St./SR 29 SR 29 SB Left Turn	235	103	114	142	152
6. Hunt Ave./SR 29	75	75	75	100	100
9. Pope St./SR 29 SR 29 SB Left Turn to Pope St.[a]	271[b]	323	330	435	443
12. Pope St./Silverado Trail Silverado Trail NB Left Turn to Pope St.	60	175	175	175	175

[a] There is an existing SR 29 (Main Street) continuous left turn lane between the Pope Street and Spring Street intersections. It has 340 feet of storage, consisting of a single left turn lane on the southbound SR 29 (Main Street) approach to Pope Street, transitioning northward as a center two-way turn lane, which then transitions into a single northbound left turn lane at Spring Street. The 340-foot-long queuing distance must accommodate vehicles waiting to make southbound left turns from SR 29 (Main Street) to Pope Street and vehicles waiting to make northbound left turns from SR 29 (Main Street) to Spring Street.

[b] Observations of AM and PM peak hour conditions during traffic count days indicated a maximum queue of three left-turning vehicles on the southbound SR 29 (Main Street) approach to Pope Street, and a maximum queue of three left-turning vehicles on the northbound approach to Spring Street. At the Spring Street intersection these maximum back-ups occurred twice in 40 signal cycles during the AM peak hour, and once in 40 signal cycles during the PM peak hour. During the majority of AM and PM peak hour signal cycles, a maximum of 1 or 2 vehicles were observed to queue at this location. The maximum of three vehicles queued to make northbound SR 29 (Main Street) left turns to Spring Street would require 69 feet of the total 340-foot storage, leaving 271 feet of storage for southbound SR 29 (Main Street) left turns to Pope Street.

Source: Crane Transportation Group, 2001. *Traffix; Estimation of Maximum Queue Lengths at Unsignalized Intersections* by John T. Gard, ITE Journal, November.

low (less than five {5} per year at any location). There were no pedestrian or bicycle related accidents reported, and no significant number of the same types of accidents reported at any given location.

(8) Pedestrian and Bicycle Volumes

All existing city bicycle routes are "Class III" bikeways (shared use with pedestrian or motor vehicle traffic) with the exception of one segment of "Class II" bike lane (striped lane for one-way bike travel on street) along Starr Avenue. These bicycle routes are consistent with the existing (1993) St. Helena General

TABLE IV.L-9 95TH PERCENTILE INTERSECTION QUEUE LENGTH IN FEET – SATURDAY PM PEAK HOUR

		Existing (Harvest 2011)		Year 2030	
Intersection	**Available Queuing Distance (Feet)**	**Existing (Feet)**	**Existing Plus Project (Feet)**	**Without Project (Feet)**	**With Project (Feet)**
1. Fulton Lane/SR 29 SR 29 SB Left Turn	85	81	85	338	366
3. Adams St./SR 29 SR 29 SB Left Turn	200+ Center Two-Way Left Turn Lane	48	56	70	78
6. Hunt Ave./SR 29	75	100	100	100	100
9. Pope St./SR 29 SR 29 SB Left Turn to Pope St.[a]	271[b]	256	260	326	326
12. Pope St./Silverado Trail Silverado Trail NB Left Turn to Pope St.	60	125	125	125	125

[a] There is an existing SR 29 (Main Street) continuous left turn lane between the Pope Street and Spring Street intersections. It has 340 feet of storage, consisting of a single left turn lane on the southbound SR 29 (Main Street) approach to Pope Street, transitioning northward as a center two-way turn lane, which then transitions into a single northbound left turn lane at Spring Street. The 340-foot-long queuing distance must accommodate vehicles waiting to make southbound left turns from SR 29 (Main Street) to Pope Street and vehicles waiting to make northbound left turns from SR 29 (Main Street) to Spring Street.

[b] Observations of AM and PM peak hour conditions during traffic count days indicated a maximum queue of three left-turning vehicles on the southbound SR 29 (Main Street) approach to Pope Street, and a maximum queue of three left-turning vehicles on the northbound approach to Spring Street. At the Spring Street intersection these maximum back-ups occurred twice in 40 signal cycles during the AM peak hour, and once in 40 signal cycles during the PM peak hour. During the majority of AM and PM peak hour signal cycles, a maximum of 1 or 2 vehicles were observed to queue at this location. The maximum of three vehicles queued to make northbound SR 29 (Main Street) left turns to Spring Street would require 69 feet of the total 340-foot storage, leaving 271 feet of storage for southbound SR 29 (Main Street) left turns to Pope Street.

Source: Crane Transportation Group; Traffix, 2001. *Estimation of Maximum Queue Lengths at Unsignalized Intersections* by John T. Gard, ITE Journal, November.

Plan, which states that bicyclists shall be discouraged from using Main Street for safety purposes and shall be encouraged to use other parallel streets. SR 29 is designated as a Class III bikeway. The city has no Class I bike facilities (separated right-of-way for exclusive use of bicycles and pedestrians). Plans for the Vine Trail would provide Class I, II & III segments throughout the community connecting St. Helena to regional destinations throughout the Napa Valley.

Existing pedestrian and bicycle counts are presented in Figures E-1 through E-6 in Appendix E for the weekday and Saturday peak traffic hours. As shown, during peak hours for vehicle traffic, pedestrian volumes are high at count locations such as Hunt Avenue at Main Street for all time periods. Bicyclists are numerous along Main Street and Adams Street in the downtown and at the Pope Street/Silverado Trail intersection.

(9) Transit

St. Helena is served by VINE Route 10 and the St. Helena Shuttle. The bus routes through St. Helena function as follows:

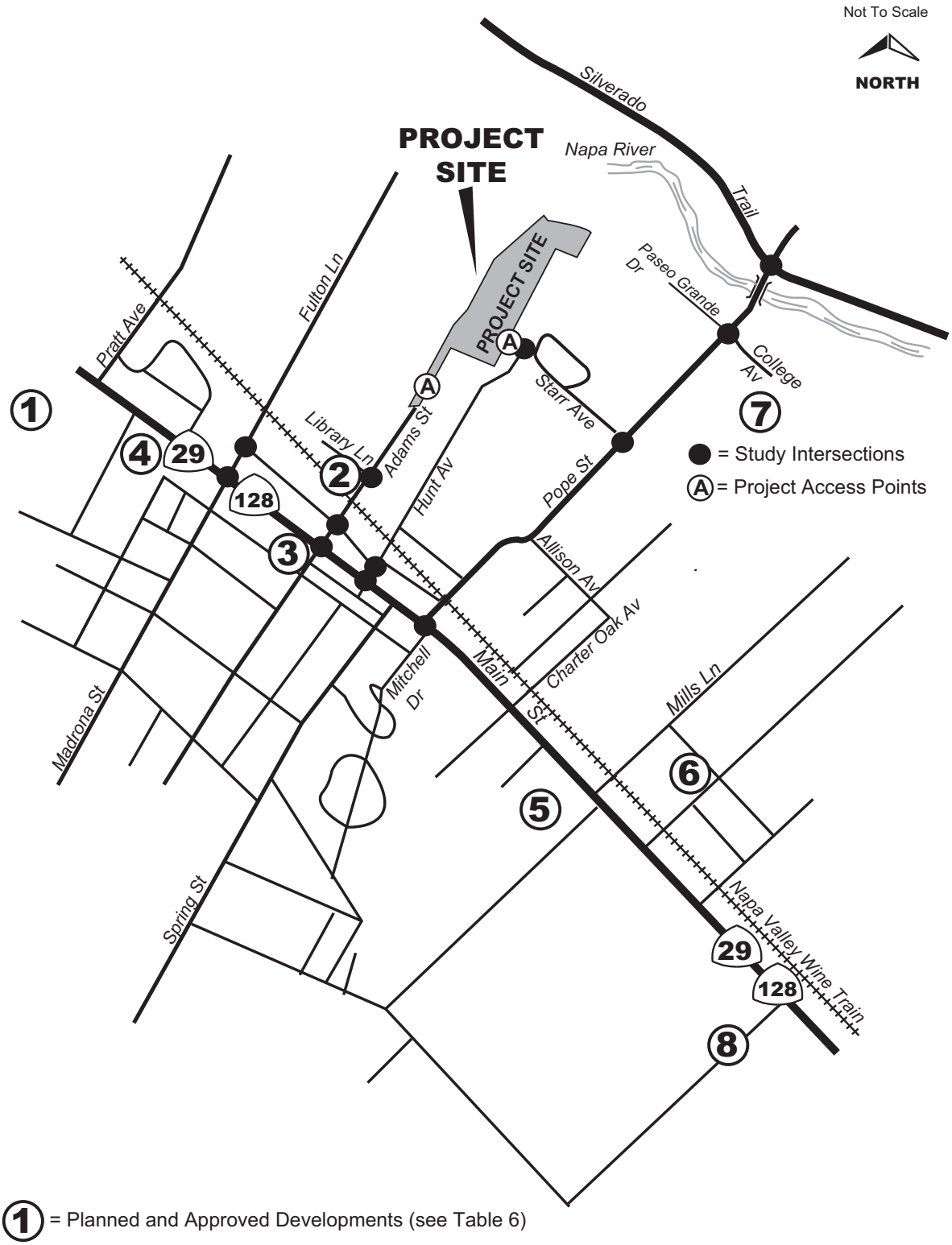
- *Route 10* – A major intercity route in Napa County, Route 10 provides service between Calistoga and Vallejo approximately once an hour from 5:00 a.m. to 9:45 p.m. on weekdays, once every hour and a half to two hours on Saturdays from 6:00 a.m. to 8:45 p.m., and four times a day on Sundays between 8:20 a.m. and 7:15 p.m. Within St. Helena, Route 10 runs along Main Street and makes stops at Pratt Avenue, City Hall, Mitchell Drive, Mills Lane, and Dowdell Lane. Route 10 provides transit connections at the Vallejo Ferry Terminal to the greater San Francisco Bay Area region.
- *St. Helena VINE Shuttle* – The St. Helena Shuttle provides a fixed route service within the City of St. Helena and to the St. Helena Hospital in Deer Park, just north of the city. The shuttle is also available for door-to-door service within St. Helena when a reservation is made on the same day of travel. The shuttle operates ten trips on weekdays between the hours of 7:45 a.m. and 5:00 p.m. Service is not available on weekends.

c. Year 2030 (Without Project) Conditions

Evaluation has been conducted of operating conditions for the Year 2030 (without project) planning horizon. Year 2030 conforms to the City's General Plan buildout.

(1) Year 2030 (Without Project) Volumes

Year 2030 weekday AM and PM peak hour and Saturday PM peak hour volumes were developed by adding traffic generated by planned and approved development in the City of St. Helena by year 2020 to existing volumes. Figure IV.L-6 shows the locations of planned and approved projects, while Table IV.L-10 provides trip generation for each development for the weekday AM and PM peak hours and the Saturday PM peak hour. In addition, a small annual traffic growth rate was applied to through volumes to account for regional growth from 2011 to 2020. To project growth to Year 2030 conditions, a growth rate developed by the City, 0.75 percent per year, was applied to Year 2020 volumes at all intersections for a 10-year period. Resultant Year 2030 (without project) volume projections are presented in Figures IV.L-7, IV.L-8, and IV.L-9.



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-6

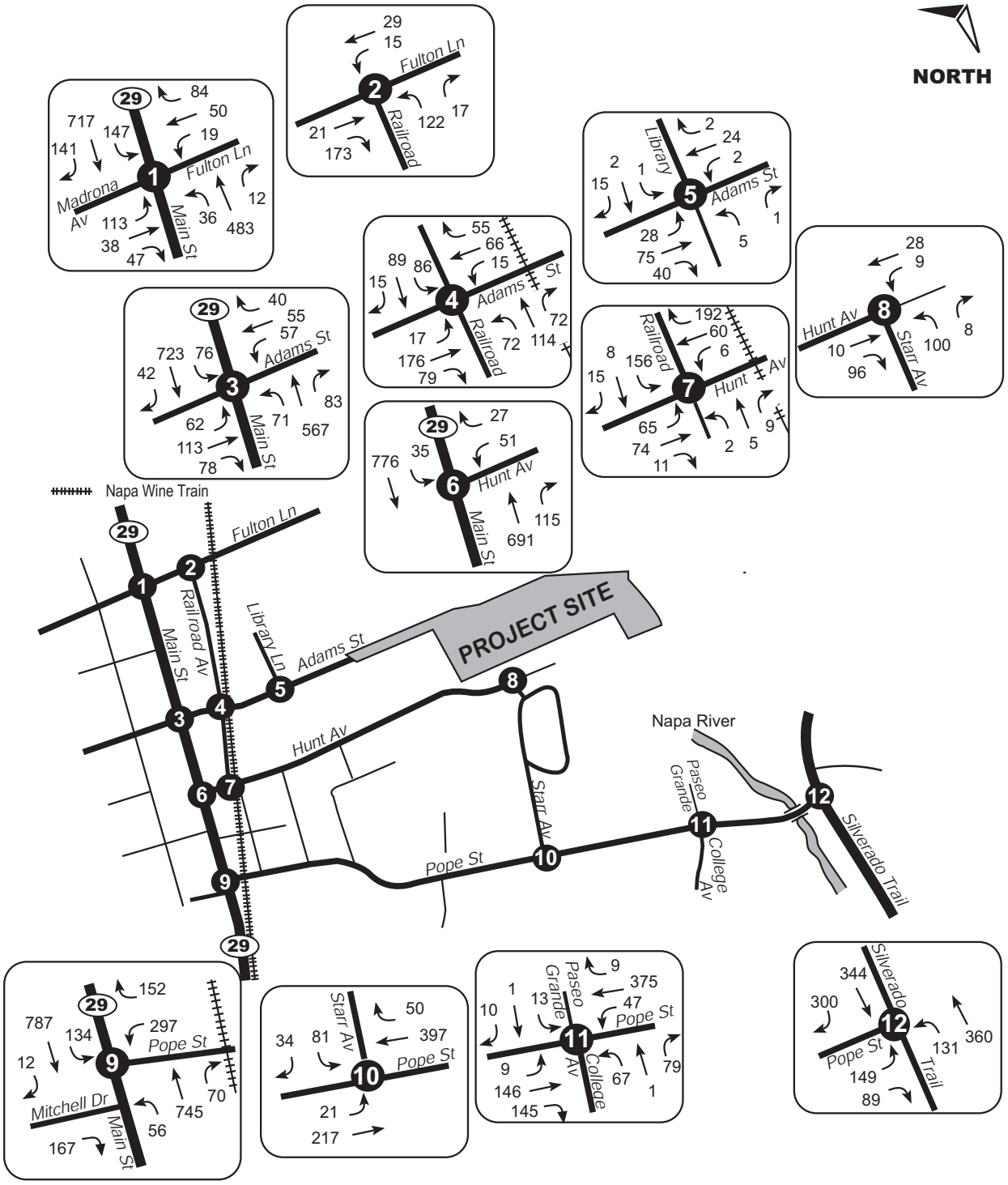
Hunter Residential Subdivision Project Draft EIR

Planned and Approved Developments in St. Helena

TABLE IV.L-10 PLANNED AND APPROVED DEVELOPMENT TRIP GENERATION

		AM Peak Hour Trips				PM Peak Hour Trips				Saturday PM Peak Hour Trips			
		Inbound		Outbound		Inbound		Outbound		Inbound		Outbound	
Project	**Size**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**
1. Elm Tree Heights	1 SF Unit	0.19	1	0.56	1	0.64	1	0.37	1	0.49	1	0.44	1
2. Adams Street Property	40,000 SF Office	1.36	54	0.19	8	0.25	10	1.24	50	0.22	9	0.19	8
	40,000 SF Commercial	0.72	29	0.48	19	1.8	72	1.8	72	1.8	72	1.8	72
3. Wydown Hotel	8-Room Expansion	0.39	3	0.28	2	0.34	3	0.36	3	0.43	3	0.44	4
4. Grandview Hotel and Restaurant	57-Room Hotel	0.39	22	0.28	16	0.34	19	0.36	21	0.43	24	0.44	25
	40-Seat Restaurant	0.02	1	0.01	0	0.17	7	0.09	4	0.19	7	0.14	6
5. Vineland Station	60-Room Hotel	0.39	23	0.28	17	0.34	20	0.36	22	0.43	26	0.44	26
	123,954 SF Commercial/Retail	0.72	89	0.48	60	1.8	234	1.8	234	1.8	234	1.8	234
6. Carl Doumani	40,000 SF Office	1.36	54	0.19	8	0.25	10	1.24	50	0.22	9	0.19	8
	40,000 SF Commercial	0.72	29	0.48	19	1.8	72	1.8	72	1.8	72	1.8	72
7. Montessori School	Buildout*	*	82	*	72	*	54	*	55	*	3	*	10
8. Magnolia Oaks Subdivision	30 Single-Family Units	0.19	6	0.56	17	0.64	19	0.37	11	0.49	15	0.44	13
	15 Apt. Units	0.10	2	0.41	6	0.40	6	0.22	3	0.32	5	0.20	3
Total			**394**		**245**		**527**		**598**		**480**		**482**

Note: SF = square feet.
* Remaining two-thirds of approved construction.
Source: Project List Source: City of St. Helena Planning Department, 2012. *Cumulative Project List.*
Trip Rate Source: Crane Transportation Group, 2012. *Trip Generation*, Eighth Edition. Institute of Transportation Engineers, 2008 and San Diego Association of Governments (SANDAG), 2003. *Trip Generators.*

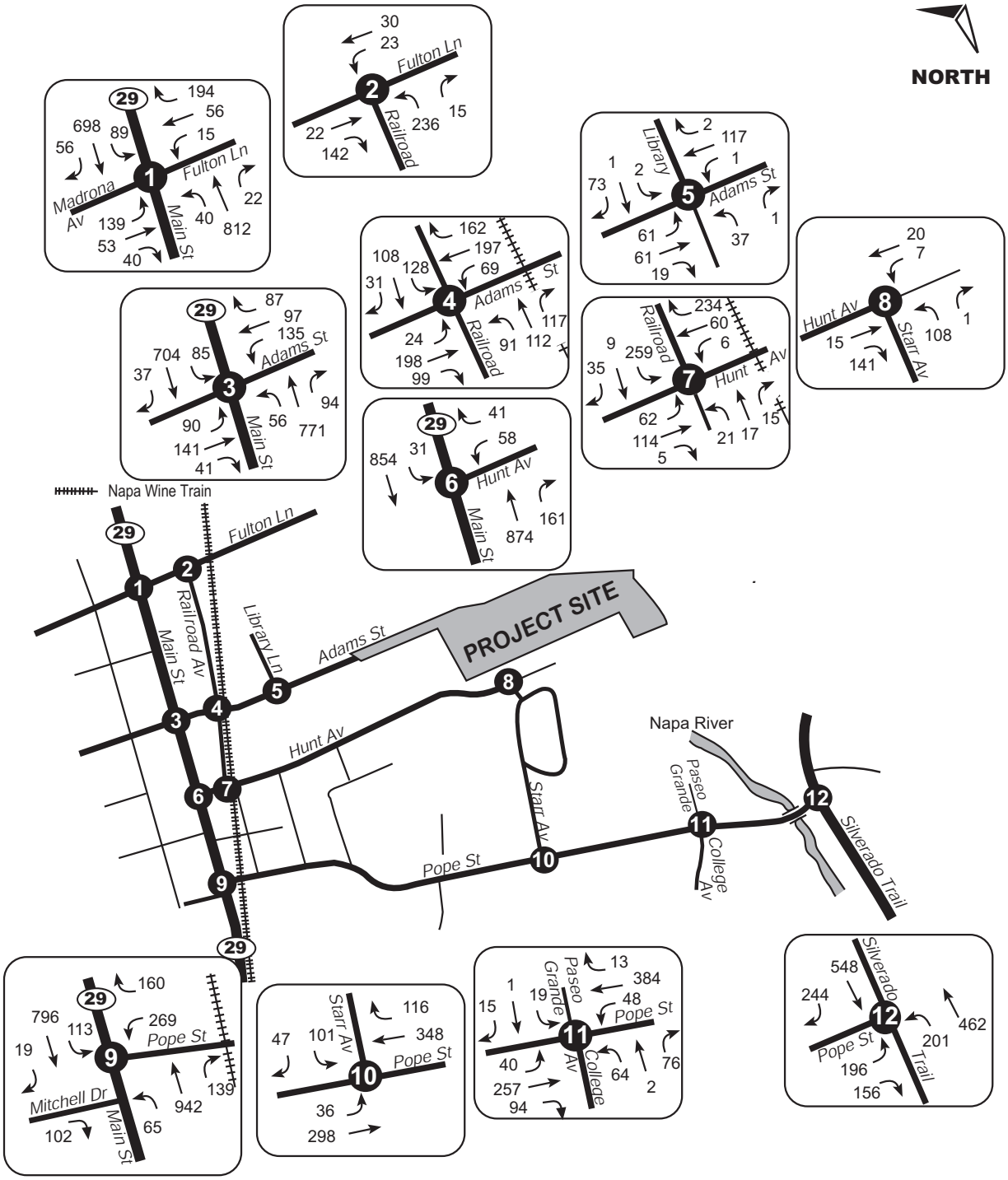


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-7

Hunter Residential Subdivision Project Draft EIR

Year 2030 Harvest Without Project Weekday AM Peak Hour Volumes

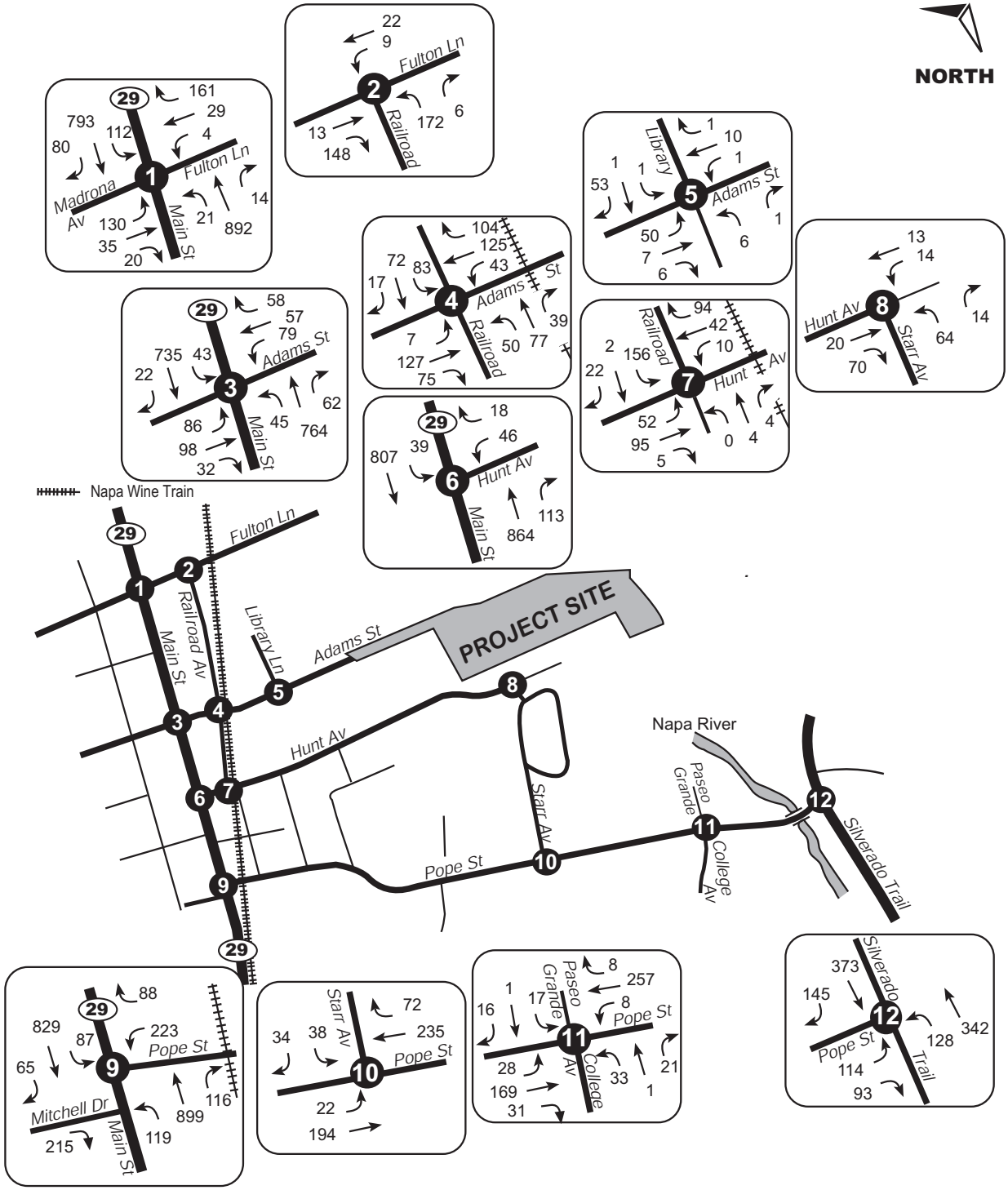


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-8

Hunter Residential Subdivision Project Draft EIR

Year 2030 Harvest Without Project Weekday PM Peak Hour Volumes



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-9

Hunter Residential Subdivision Project Draft EIR

Year 2030 Harvest Without Project Saturday PM Peak Hour Volumes

(2) Intersection Level of Service

Tables IV.L-3, IV.L-4, and IV.L-5 show that during the weekday AM peak hour, the unsignalized Pope Street/Silverado Trail intersection will operate unacceptably at LOS E with 35.7 seconds of delay for the Pope Street stop sign controlled approach. All other intersections will operate acceptably during this time period.

During the weekday PM peak hour, three side street stop sign controlled intersections and two signalized intersections will experience unacceptable delay:

- Adams Street/SR 29: This signalized intersection will operate unacceptably at LOS E with 70.1 seconds of delay;
- Hunt Avenue/SR 29: This unsignalized intersection will have the Hunt Avenue stop sign controlled approach operating unacceptably at LOS F with 90.7 seconds of delay;
- Hunt Avenue/Railroad Avenue: This unsignalized intersection will have the Railroad Avenue stop sign controlled approach operating unacceptably at LOS F with 61.1 seconds of delay;
- Pope Street/SR 29: This signalized intersection will operate unacceptably at LOS F with 80.4 seconds of delay; and
- Pope Street/Silverado Trail: This unsignalized intersection will have the Pope Street stop sign controlled approach operating unacceptably at LOS F with 279.0 seconds of delay.

During the Saturday PM peak hour, one side street stop sign controlled intersection and one signalized intersection will experience unacceptable delay:

- Hunt Avenue/SR 29: This unsignalized intersection will have the Hunt Avenue stop sign controlled approach operating unacceptably at LOS F with 56.3 seconds of delay;
- Pope Street/SR 29: This signalized intersection will operate unacceptably at LOS E with 61.3 seconds of delay.

(3) Signal Warrant Analysis

Table IV.L-6 shows that volumes at the Pope Street/Silverado Trail intersection will meet Rural Peak Hour Signal Warrant #3 criteria levels during the weekday AM and PM peak hours.

(4) Multi-Way Stop Control Warrant Analysis – College Avenue/Pope Street/Paseo Grande Intersection

The California MUTCD multi-way stop control warrant analysis criteria indicate that peak hour volumes at the College Avenue/Pope Street/Paseo Grande intersection would not meet the multi-way stop warrant for any analysis time period.

(5) Vehicle Queues

Tables IV.L-7, IV.L-8, and IV.L-9 show that the following left turn lanes are projected to have 95th percentile queues exceeding available storage:

- Southbound SR 29 at Fulton Lane: weekday AM and PM peak hours and Saturday PM peak hour.
- Southbound SR 29 at Hunt Avenue: weekday AM and PM peak hours and Saturday PM peak hour.
- Southbound SR 29 at Pope Street: weekday AM and PM peak hours and Saturday PM peak hour.
- Northbound Silverado Trail at Pope Street: weekday AM and PM peak hours and Saturday PM peak hour.

d. Planned Circulation Improvements

Based on information provided by City staff, there are no planned and funded roadway improvements to the roads addressed in this analysis that would increase roadway capacity or create new roadway connections.

e. Regulatory Setting

The following describes the City of St. Helena regulatory and policy requirements for traffic and transportation.

(1) Existing 1993 General Plan

The City's existing General Plan, adopted in 1993, outlines policies, standards, and programs that together provide a comprehensive, long-term plan for physical development within the city. Individual development projects must demonstrate general consistency with the goals and policies outlined within the General Plan, which articulates and implements the City's long-term vision, including provisions for transportation and traffic.

TRANSPORTATION
Street System
POLICY 5.3.2 Add the following streets to the existing system: ▪ Adams Street from its current eastern terminus to Silverado Trail ▪ McCorkle Avenue from Mariposa Lane to the extension of Starr Avenue ▪ Oak Avenue from Mitchell Drive to Grayson Avenue ▪ Library Lane from its current terminus to Fulton Lane ▪ An unnamed new street located east of Edwards Street connecting Hunt Avenue and Pope Street ▪ Starr Avenue from the extension of Adams Street to the Urban Limit Line
POLICY 5.3.3 Preserve rights-of-way for future collector streets within the planning area of the City as follows: ▪ Starr Avenue from Pratt Avenue to Adams Street and from the Urban Limit Line to Dowdell Lane ▪ Mills Lane from SR 29 to Starr Avenue, including a potential realignment with Grayson Avenue at SR 29

TRANSPORTATION

- Oak Avenue from Vidovich Avenue to Grayson Avenue

The City recognizes that development mayor may not proceed along the lines envisioned in this plan, and that some areas not currently identified for potential development may in fact precede those that are so designated. The intent of the right-of-way preservation designation is to clearly define the interest of the City in maintaining the option for extending its collector street system into these areas. Special setback areas shall be established along collector streets to allow for future widening.

Traffic Service Standards

POLICY 5.4.1 Service Level C shall be maintained at all signalized intersections in St Helena except along Main Street, where Service Level D shall be permitted. Exceptions to this policy are that lower service levels shall be permitted at any location where the existing service level does not meet this standard; in these locations, the Service Level shall not be lower than that shown in Table 5-3. The City Council may also allow an exception to this policy if it finds overriding circumstances, which make maintenance of this policy impractical or infeasible.

POLICY 5.4.2 Service Level C is a goal at stop-sign-controlled intersections. If the Service Level degrades below Level C, an evaluation of the need for traffic signalization shall be undertaken according to standard CALTRANS signal warrants. If signals are not initially warranted, the location shall continue to be monitored for signal warrants on a regular basis.

The Napa County Congestion Management Plan (CMP) is a document mandated by the State of California for all metropolitan areas. Among its requirements are the adoption of a service level policy on all highways that make up the CMP network. In St. Helena, only SR 29 *(Main Street) is on the CMP network. Napa County has adopted Service Level E as its standard, except that Highway* 29 *north of Oak Knoll Avenue has a standard of Level* D. *The City of St. Helena policy above is consistent with the County standard. The CMP also permits the use of the Highway Capacity Manual Planning method for General Plan evaluation. The evaluation in Table* 5-3 *is consistent with that methodology, except that where the HCM planning method only identifies "under capacity", "at capacity" and "over capacity", Table* 5-3 *uses the volume/capacity ratios to arrive at a Service Level in accordance with earlier evaluation methodologies.*

Roadway Improvement Standards

POLICY 5.5.2 Local streets in newly developing areas should be laid out in a manner consistent with the grid system currently in place in the older portions of St Helena and in conformance with adopted City standards. Care should be taken to insure that these grids contain enough discontinuity to discourage their use by non-local traffic. Local streets should have a paved width of 36 feet with a ten-foot wide area adjacent to curb for sidewalk and landscaping.

Pedestrian Routes and Bikeways

POLICY 5.8.1 All new development on collector streets shall provide sidewalks or walkways to be located with the City's right-Of-way for the collector street. Further, unless exempted or deferred by the City Council, all residential developments shall provide sidewalks on all local streets within the development

It is a goal of the City that it continues to remain at a size where the majority of development is within a 10 minute walk of the downtown. Sidewalks or walkways will reinforce the pedestrian orientation of the City.

Improvements and Phasing

POLICY 5.10.1 All new collector streets shown in the Circulation Diagram shall be constructed as development occurs along the proposed streets. The exception to this policy is that the City Council may require additional construction to reinforce system continuity.

POLICY 5.10.2 The City desires that the Adams Street extension to Silverado Trail be completed in an expeditious manner; the City will work with potential developers to acquire the needed combination of public and private financing required to implement this project.

POLICY 5.10.3 The City shall collect Traffic Mitigation Fees to assist in financing improvements to the citywide circulation system.

(2) Draft General Plan Update

The Draft General Plan Update, not yet adopted, provides expanded and updated data and analyses on which multiple policies and implementing actions are based. Impacts are mitigated by finding ways to reduce single occupancy vehicle trips, improve circulation through St. Helena, and promote walking, bicycling and transit trips as viable transportation options. Draft General Plan Update Circulation Element Section 5.6, Policies and Implementing Actions, are organized into the following topic areas: Balanced and Multimodal System; Safe, Accessible, and Comprehensive Bicycle and Pedestrian Network; Safe and Well-Maintained Circulation System; Parking; and Improvements and Phasing.

CIRCULATION
Balanced and Multimodal System
POLICY CR1.1 Promote a connected street network within the City to provide better internal automobile, bicycle and pedestrian connections for residents. Where new streets are constructed, ensure they connect to dead-end roads and other streets to create a flexible network for residents.
POLICY CR1.2 Provide complete streets that balance the diverse needs of users of the public right-of-way, in accordance with the California Complete Streets Act of 2008.
POLICY CR1.4 Use performance measures that consider all road users to determine transportation impacts of new development.
POLICY CR1.5 Avoid mitigation measures that negatively impact the walking and bicycling environment and encourage driving, such as roadway and intersection widenings.
POLICY CR1.8 Reduce transportation-based GHG emissions from City-controlled sources by employing the following strategies: ▪ Implement "smart growth" and sustainable planning principles as defined in the Land Use Element; and ▪ Encourage jobs/housing match, as defined in the Housing Element;
POLICY CR1.10 Strive to maintain a ten minute or less travel time during peak periods along State Route 29, from the northern and southern City boundaries.
POLICY CR1.11 Establish a multimodal transportation impact fee program to finance and implement project mitigations that help achieve GHG reduction goals. As part of the impact fee program, require new development to manage citywide travel demand and finance and construct all off-site circulation improvements necessary to reduce the severity of cumulative transportation impacts to all modes of travel.
IMPLEMENTING ACTION CR1.A Use the street typologies as defined in the Circulation Element as a basis for improving and managing streets. Improve vehicle, pedestrian and bicycle facilities on streets based on this system.
IMPLEMENTING ACTION CR1.B Construct the following new roads and connections as any potential new development occurs. Where feasible, preserve existing rights-of-way. ▪ Starr Avenue extension north to Adams Street ▪ Adams Street from its current eastern terminus to Starr Avenue ▪ Consider two options to connect downtown St. Helena to Silverado Trail: a) Adams Street extension to Silverado Trail; b) Mills Lane extension to Silverado Trail
IMPLEMENTING ACTION CR1.D Use the performance measures defined in the Circulation Element as the basis for evaluating the impacts of development on the street system.
IMPLEMENTING ACTION CR1.H Measure total automobile trips generated by new developments on a per project basis, to reduce vehicle trips. Maintain a citywide trip generation analysis methodology that evaluates the effects of land use and built environment changes on travel choices and behavior.
IMPLEMENTING ACTION CR1.I Evaluate changes to vehicle travel times along State Route 29 on a per-development or per-project basis. Establish significance criteria for determining if an increase in travel time resulting from new development is significant.

CIRCULATION
IMPLEMENTING ACTION CR1.J Ensure that any new land use development provides a continuous path of travel for walking and bicycling from the development site to the center of downtown and other key destinations, as determined by the City. Determine appropriate bicycle and pedestrian routes based on street typologies and the proposed bicycle and pedestrian network. If a path of travel is not continuous, require development to construct improvements and/or contribute to the transportation mitigation fee program.
Sustainable and Mobility Practices
POLICY CR3.7 Support compact, mixed-use development as outlined in the Land Use and Housing elements.
Safe and Well Maintained Circulation System
POLICY CR4.3 Continue efforts to calm traffic, and minimize traffic volumes and speeds in residential areas.
Improvements and Phasing
POLICY CR6.2 Require concurrent infrastructure development for any new development projects that have impacts on the circulation system, including streets, paths, trails, sidewalks and public transit.
POLICY CR6.3 Consider requiring dedications and mitigations beyond traffic mitigation fees for any development that occurs adjacent to proposed street corridors in order to reinforce system continuity. Traffic mitigation fees are necessary to mitigate existing traffic congestion and congestion caused by new development. Consider revising fee schedules to appropriately mitigate impacts. The fee schedule must be based on an established "nexus" between new development and the planned improvements.
IMPLEMENTING POLICY CR6.A Prioritize and construct all new streets, paths and trails (identified in Section E: St. Helena's Circulation and Mobility Future) when adequate funding is secured and concurrent with any new, adjacent developments.

(3) City of St Helena Zoning Code

The City of St Helena Zoning Code, Chapter 16.32 Design Standards and Improvements provides design requirements for traffic, circulation, and parking. The following code requirements from section 16.32.060 Circulation and Traffic are applicable to residential construction in St. Helena.

A. The subdivision shall be consistent in concept, alignment, and level of improvement with the circulation element of the general plan, and any applicable specific plan, as well as any street connection policy. On-site parking shall be required to meet zoning regulations.

B. Satisfactory access to the subdivision and to each lot shall be provided by public streets meeting all applicable standard specifications. Subdivisions with streets longer than five hundred (500) feet may be required to provide multiple access. Access shall be deemed satisfactory only if it will allow reasonable ingress and egress for emergency vehicles.

C. All streets shall be designed and constructed to ensure the public health, safety, and welfare, and to meet the relevant standards set forth in the public works and fire department specifications, and CalTrans standard specifications. In addition:

   2. The frontage of each lot shall be improved to its ultimate geometric section to the centerline of the street, including street structure section,

curbs, sidewalks, driveway approaches, and transitions. Where necessary to provide adequate circulation and safety, two-way traffic flow shall be provided by sufficient pavement construction beyond the centerline of the street.

3. All streets shall, as far as practicable, be in alignment with existing and adjacent streets by continuation of center lines, or by adjustment by curves, and shall be in general conformity with the plans made for the most advantageous development of the area in which the subdivision lies. Streets shall be required to intersect one another at an angle as near to a right angle as is practicable in each specific case. Where a street joins acreage, provision may be required for adequate street access thereto.

G. All streets shall have adequate street lights installed according to a plan approved by public works director.

Applicable City standards for site development specific to parking, vehicle access and roadway design are found in the City of St. Helena Zoning Code section 17.124.

2. Impacts and Mitigation Measures

This section discusses potential impacts on traffic and transportation that could result from implementation of the proposed project. The section begins with the criteria of significance, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with the proposed project and recommends mitigation measures to reduce significant impacts, if needed. A summary of the potentially significant items relative to the significance criteria is provided in Table IV.L-11.

a. Determining Significance and Scope

The significance criteria used for analyzing and determining the project's level of impact on traffic and transportation and the scope of the analysis are described in this section. A summary of findings from the Initial Study relevant to traffic and transportation and a summary of comments submitted during the scoping period that is relevant to the scope of this analysis is also provided.

(1) CEQA Significance Criteria

Appendix G of the CEQA Guidelines provides that a project would have a significant transportation and traffic impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit;

TABLE IV.L-11 TRAFFIC AND TRANSPORTATION IMPACT SUMMARY TABLE

CEQA Significance Criteria	*EIR Findings*
▪ Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and all non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit?	SU (see Impacts TRAF-1 to TRAF-7 beginning on page 349)
▪ Conflict with an applicable congestion management program, including but not limited to, level of service and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	SU (see Impacts TRAF-1 to TRAF-7 beginning on page 349)
▪ Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	Focused out in Initial Study (see page 335)
▪ Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections or incompatible uses (e.g., farm equipment)?	LTS (see page 354)
▪ Result in inadequate emergency access?	LTS (see page on page 336)
▪ Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	LTS with Mitigation (see Impact TRAF-7 on page 354)

Source: Urban Planning Partners, 2012.

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (i.e., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Based on the City of St. Helena's current transportation impact criteria and the state of the practice for evaluating impacts on the transportation system, the above general significance criteria are interpreted as follows in evaluating the proposed General Plan Update.

City Roadway and Intersection Impact Criteria. The City's current level of service standard is LOS D for signalized intersections on SR 29 (Main Street) and LOS C elsewhere. Based on existing CEQA and City of St. Helena standards, traffic impacts are identified as significant if implementation of the project would cause:

- Operations of a signalized intersection along SR 29 (Main Street) to deteriorate from LOS D under conditions without the project to LOS E or F, or operations at other signalized intersections to deteriorate from LOS C under conditions without the project to LOS D, E, or F.
- The level of service to deteriorate to LOS F for signalized intersections that operate at LOS E under conditions without the project.
- The average intersection delay to increase by more than five seconds for signalized intersections that operate at LOS E or F under conditions without the project.
- The level of service to deteriorate to LOS D, E, or F for unsignalized intersections operating at LOS C or better under conditions without the project, and the traffic volumes would satisfy Caltrans peak hour volume warrant criterion for traffic signal installation. For unsignalized intersections on SR 29 (Main Street) operating at LOS D or better under conditions without the project, the impact would be significant if the project would cause the level of service to deteriorate to LOS E or F, and the traffic volumes would satisfy the Caltrans peak hour volume warrant for traffic signal installation.
- Average delay to increase by five seconds or more for unsignalized intersections operating at unacceptable levels (LOS D, E, or F for all intersections not along SR 29 (Main Street); or LOS E or F on SR 29 (Main Street) under conditions without the project, and the traffic volumes would satisfy the Caltrans peak hour volume warrant for traffic signal installation.
- If traffic volumes at an intersection already meet the peak hour signal warrant criteria, the impact is considered significant if the project would increase the total volume of peak hour traffic entering the intersection by 1 percent.
- If 95th percentile without project queuing in the left turn lane of a major intersection is within available storage and is projected to exceed the available turn lane storage distance with the addition of project traffic, the impact is considered significant if the without project 95th percentile queuing demand already exceeds available storage, and the project would increase the turn movement volume by 3 percent or more, and increase the total volume of traffic entering the intersection by 1 percent, the impact is considered significant.
- If, in the opinion of the registered traffic engineer conducting this study, certain project-related traffic changes would substantially increase safety or

operational concerns, the impact is considered significant and would require mitigation.

(2) Initial Study Findings

An Initial Study for the project was completed in June 2011 (See Appendix A). The Initial Study found that the project would have no impact with regard to the following criteria:

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

As a result, no further discussion of this criterion is provided in this EIR.

(3) Scoping Comments and Scope of the Analysis

Verbal and written comments from members of the public and regulatory agencies were received during an extended scoping period from September 23, 2011 to January 6, 2012 including at the Scoping Session public hearing on December 6, 2011. A Scoping Summary of comments received is included in Appendix A of this document.

Comments concerning traffic addressed impacts on County roads and roadways throughout the city, requests to include measurements at peak traffic utilization times, analysis of traffic impacts on tourism, parking and pedestrian safety, and consideration of traffic calming measures.

b. Proposed Project

Trip generation and distribution for the proposed project is described below.

(1) Project Trip Generation

Project trip generation is shown in Table IV.L-12 for weekday AM and PM peak hour, as well as Saturday PM peak hour conditions. The Institute of Transportation Engineers (ITE) trip rates for single family dwellings have been used to determine trips volumes for all proposed units, other than the 11 granny units, in order to present a conservative analysis. This is in recognition of the potential for more than one working adult per workforce housing unit and the potential for multiple vehicles per unit. Following this conservative philosophy, the ITE trip rates for apartments have been applied to the 11 granny units.

The project would be expected to generate 16 inbound and 47 outbound weekday AM peak hour trips, 54 inbound and 30 outbound weekday PM peak hour trips, and 41 inbound and 35 outbound Saturday PM peak hour trips.

(2) Project Trip Distribution

The Draft General Plan Update transportation and traffic section presents census data for destinations for workers living in St. Helena. These data, as well as observed traffic patterns and locations of schools, recreational facilities,

shopping and commercial areas were considered in determining trip distribution. The increment of project traffic is shown distributed to the local roadway network in Figures IV.L-10, IV.L-11, and IV.L-12. "With-project" lane geometrics are shown in Figure IV.L-13, illustrating the extension of Starr Avenue to Adams Street. Project traffic is shown added to Existing and Year 2030 volumes in Figures IV.L-14 through IV.L-19. Volumes reflect some amount of existing traffic flow redistribution through the site due to the new road connections and possible new volume decreases on some sections of Hunt and Railroad Avenue.

c. Less-than-Significant Transportation and Traffic Impacts

(1) Emergency Access

The Wine Train could potentially impede emergency access across Adams Street and Hunt. The current weekday Wine Train schedule and presence of the train in St. Helena consists of a 15-minute stop from about 1:00 to 1:15 p.m., and a second 15-minute stop from about 6:30 to 6:45 p.m. The Wine Train is supposed to keep all grade crossings clear, thus, it is only when the train is in motion that a crossing is blocked from use by emergency services. Depending upon the speed of the train, a crossing can be blocked for as much as two minutes. In consideration of the two crossings (i.e., ingress and egress of the Wine Train at the Adams Street and Hunt Avenue crossings), these crossings could be blocked for a potential total of eight minutes (i.e., two minutes on arrival, and two minutes on departure, times two crossing locations = eight minutes). Eight minutes out of a 24-hour period (1,440 minutes), represents very little time per day when emergency access is blocked or delayed, amounting to less than ½ of 1 percent per 24-hour period. This is one way of interpreting the current effect of the Wine Train in St. Helena. The number of cars projected to be added to the roadway system due to the project, and the ability of emergency services to access the Hunter Subdivision Project when the Wine Train is present, would not be expected to substantially change with construction of the project, although there will be improved roadway connectivity between Hunt Avenue and Adams Street via the extension of Starr Avenue. Due to the small percentage of time as issue with the presence of Wine Train, this issue is considered less than significant.[6]

The City Police Department maintains City's Emergency Response Plan and is directed by the current General Plan to maintain and update the plan, as well as conduct periodic emergency response exercises. The City Municipal Code also contains provisions to ensure that new development does not interfere with emergency response or evacuation. Chapter 15.36 includes City-specific amendments to the California Fire Code to maintain adequate roadway width and access for emergency vehicles. The Municipal Code also empowers the city manager, the fire chief, and the fire code official to make any necessary

[6] Jim Capponi, St. Helena Deputy Fire Chief. Discussion with Crane Transportation Group, April 26, 2012.

modifications to projects to ensure emergency access. The nature and location of the project would not be expected to impede emergency response or evacuation, and this potential impact would be considered less than significant.

(2) Construction Traffic

Buildout of the project would be subject to the City's Growth Management System, which limits the issuance of non-income restricted residential building permits to nine units per year. Unfulfilled non-income restricted residential building permits are rolled over from year to year. Based on information from the St. Helena Planning Department, there are forty-three existing permits. Based on the Growth Management System requirements, current demand on permits, and the number of existing unfulfilled permit, the following residential construction schedule was assumed:

- **Fall of 2012:** Site Grading.
- **2013:** Build infrastructure (installation of roads water, sewer telecommunication, electrical and natural gas lines).
- **2014:** Construction of 31 non-income restricted units.
- **2015:** Construction of 25 affordable housing and 20 non-income restricted units.

Construction related traffic would likely enter the site via Adams Street and or Starr Street. If Starr Street is the only access, then construction related volumes along Starr could reach the same levels as those of the completed project. However, they would likely only be measurable during weekday commute hours. The construction traffic impact (or perceived impact) would potentially be considered more of a problem by the residential neighborhoods along Starr Street and Pope Street than by the commercial businesses along Adams Street. However, the change in traffic as a result of project construction activity would be less-than-significant as it would not exceed any of the significance criteria.

To ensure the less-than-significant effects of construction traffic are minimized, the following Condition of Approval is recommended that all project construction traffic be directed to use Adams Street (to/from SR 29) to access the project site. In addition, all construction workers should be parked on the project site.

d. Significant Transportation and Traffic Impacts

(1) Circulation System Performance and Applicable County Congestion Management Agency Standards and Alternative Transportation Policies

Intersections (Existing + Project). Tables IV.L-3, IV.L-4, and IV.L-5 show that during the weekday AM and PM peak hours and Saturday PM peak hour, at all but

TABLE IV.L-12 PROJECT TRIP GENERATION

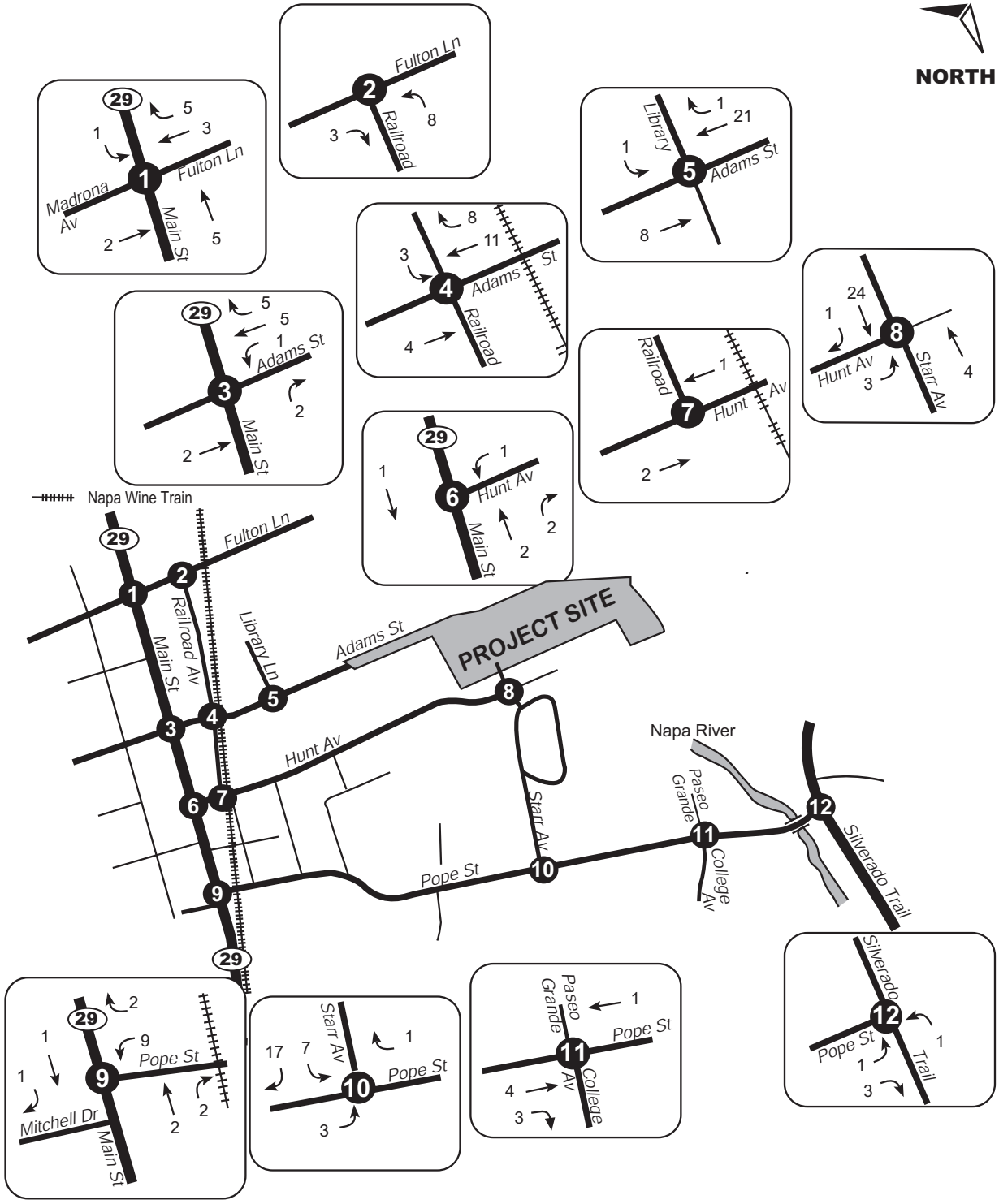
		Weekday AM Peak Hour Trips				Weekday PM Peak Hour Trips				Saturday PM Peak Hour Trips			
		Inbound		Outbound		Inbound		Outbound		Inbound		Outbound	
Project	**Size**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**	**Rate**	**Vol**
Hunter Subdivision Project	51 Single-Family Units	0.19	10	0.56	28	0.64	33	0.37	19	0.49	25	0.44	22
	11 Apartment (Granny) Units[a]	0.10	1	0.41	5	0.40	5	0.22	2	0.32	4	0.20	2
	25 Single-Family or Multi-Family Units[b]	0.19	5	0.56	14	0.64	16	0.37	9	0.49	12	0.44	11
Total	**87 Units**		**16**		**47**		**54**		**30**		**41**		**35**

[a] These are very small units located on the same property as the 51 single family units. Reflects use of conservative trip rates.

[b] Reflects use of most conservative trip rate.

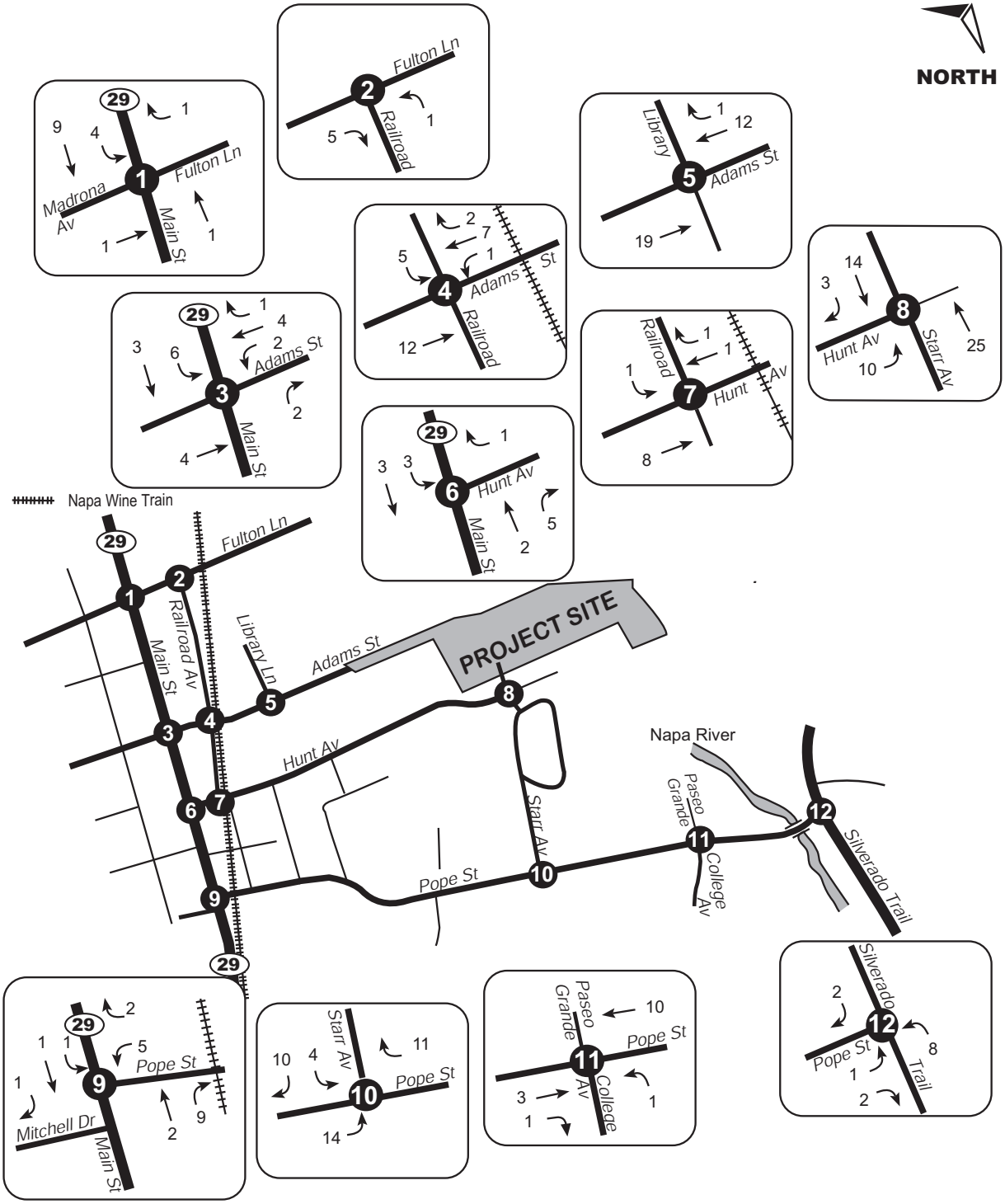
Source: Trip Rate Source: Crane Transportation Group, 2012. *Trip Generation*, Eighth Edition, Institute of Transportation Engineers, 2008. San Diego Association of Governments (SANDAG) *Trip Generators,* 2003.

Text continues on page 349



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-10
Hunter Residential Subdivision Project Draft EIR
Weekday AM Peak Hour Project Increment

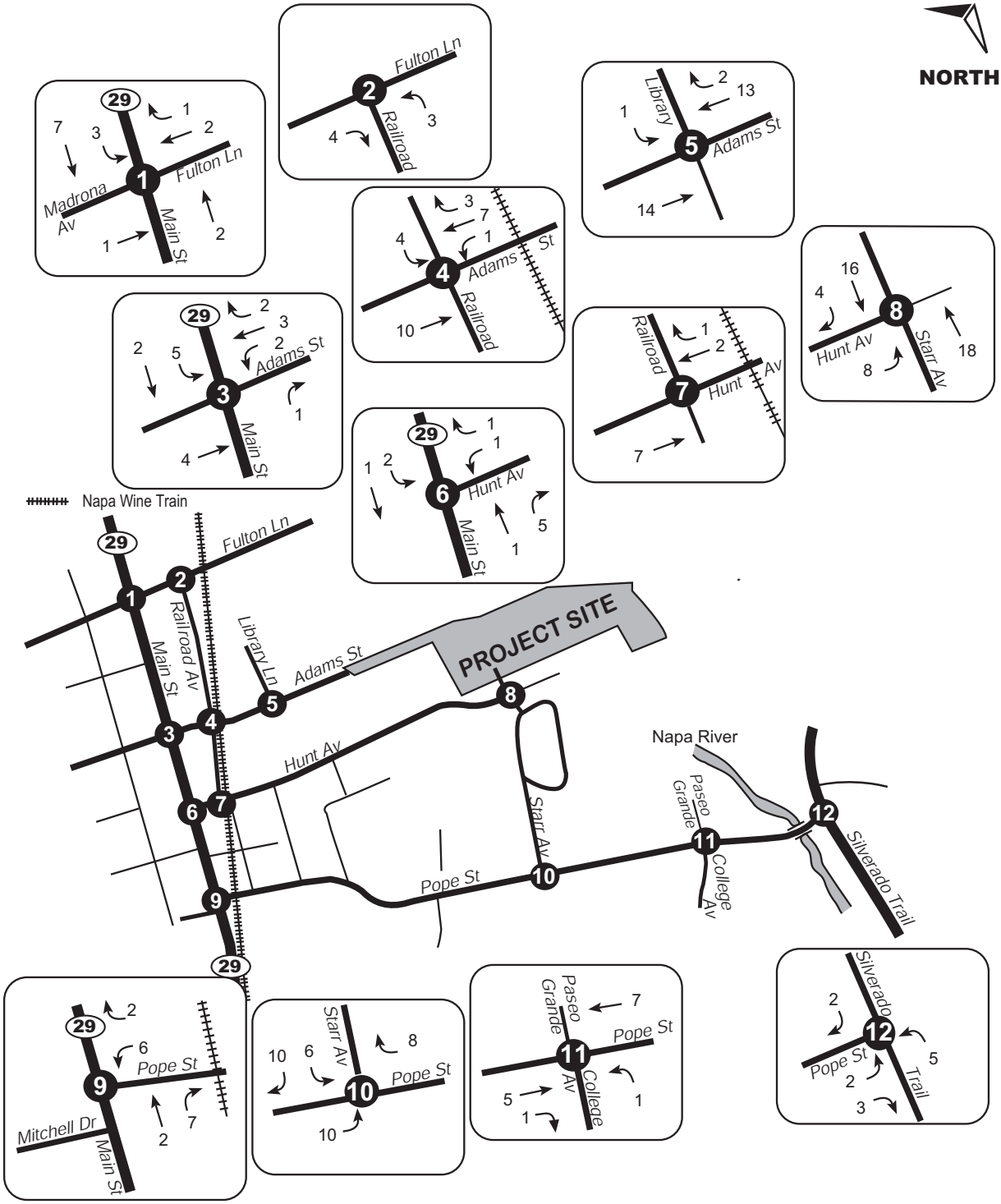


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-11

Hunter Residential Subdivision Project Draft EIR

Weekday PM Peak Hour Project Increment

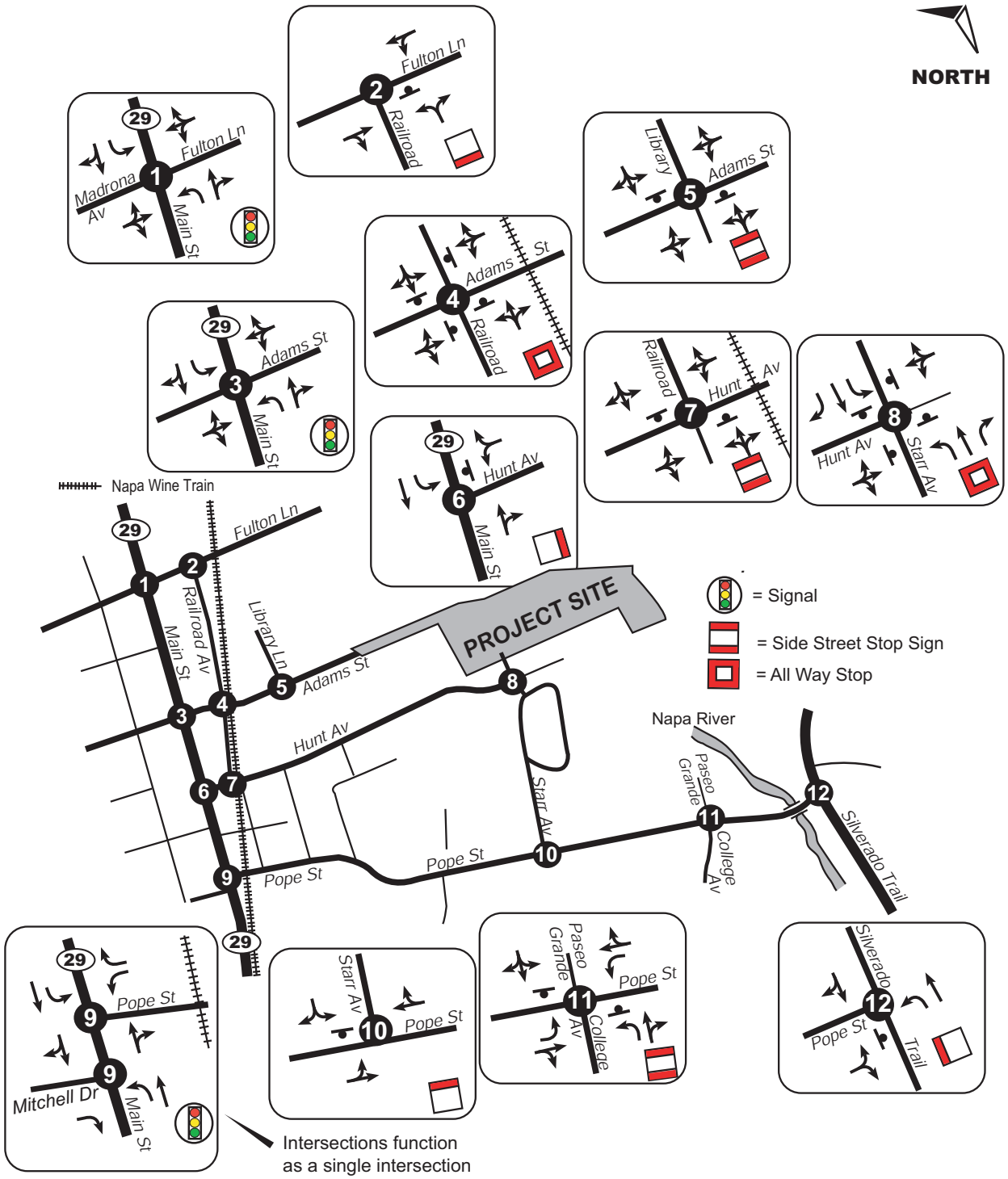


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-12

Hunter Residential Subdivision Project Draft EIR

Saturday PM Peak Hour Project Increment

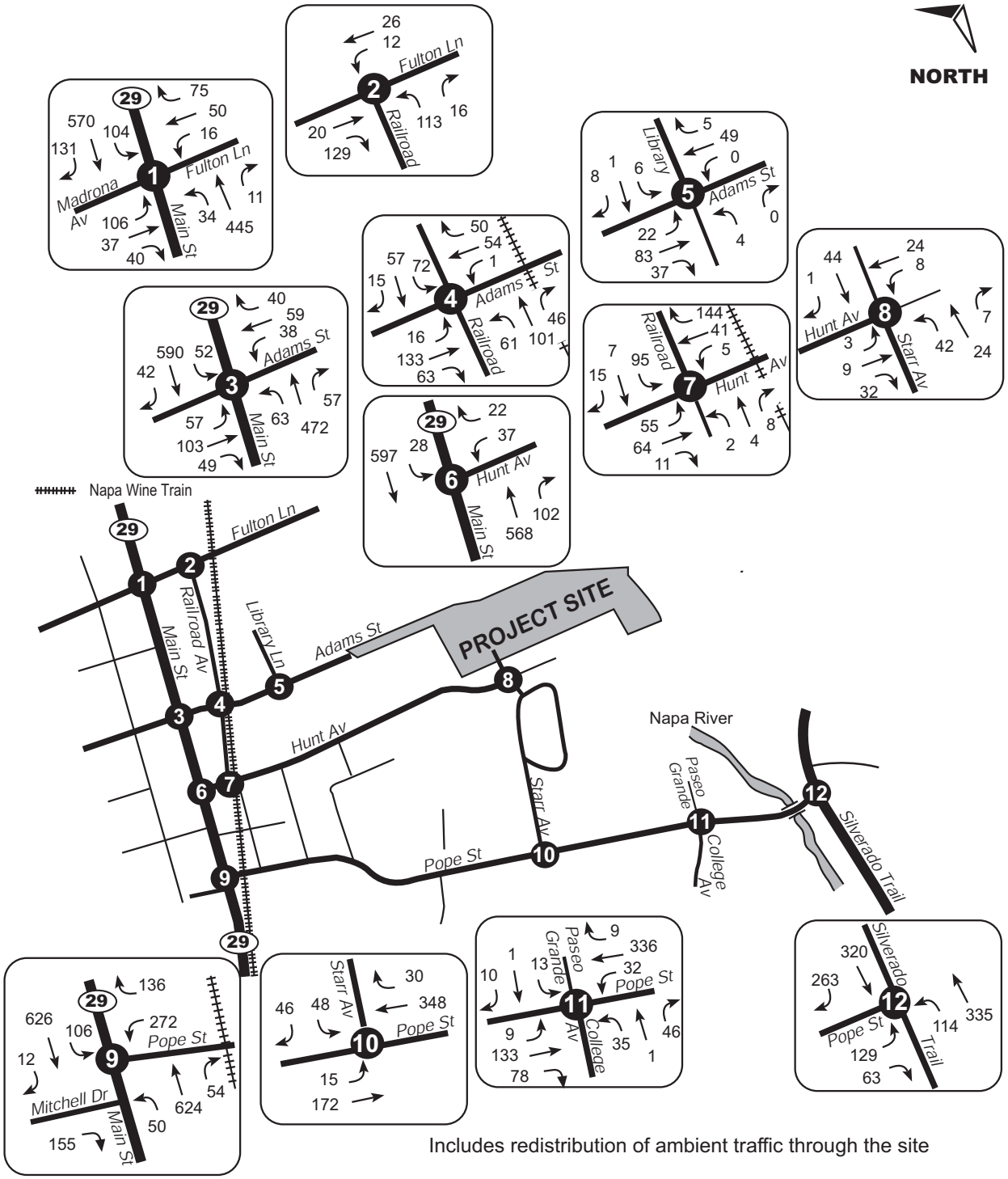


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-13

Hunter Residential Subdivision Project Draft EIR

Year 2030 with Project Lane Geometrics and Intersection Control

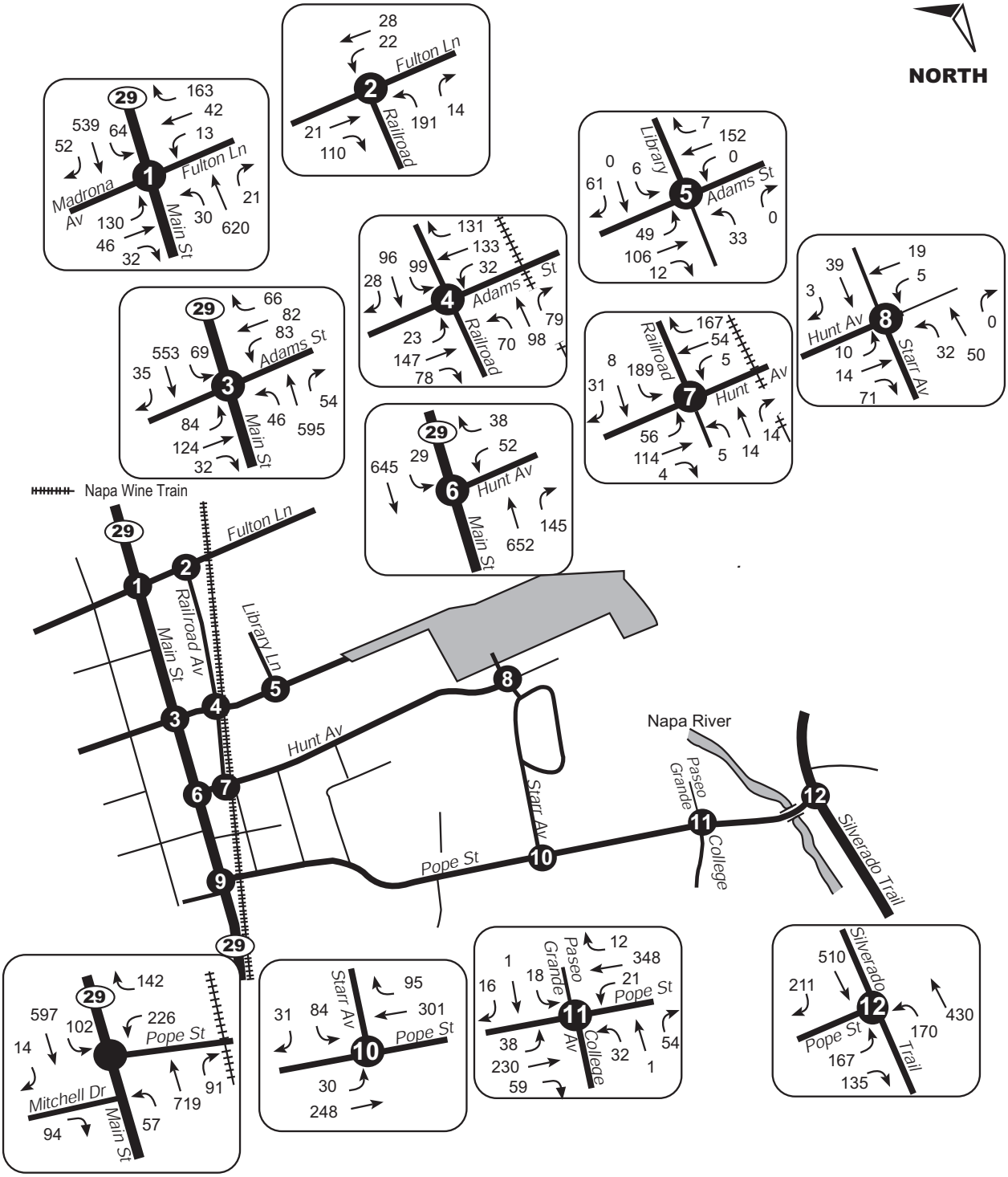


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-14

Hunter Residential Subdivision Project Draft EIR

Existing with Project Harvest Weekday AM Peak Hour Volumes

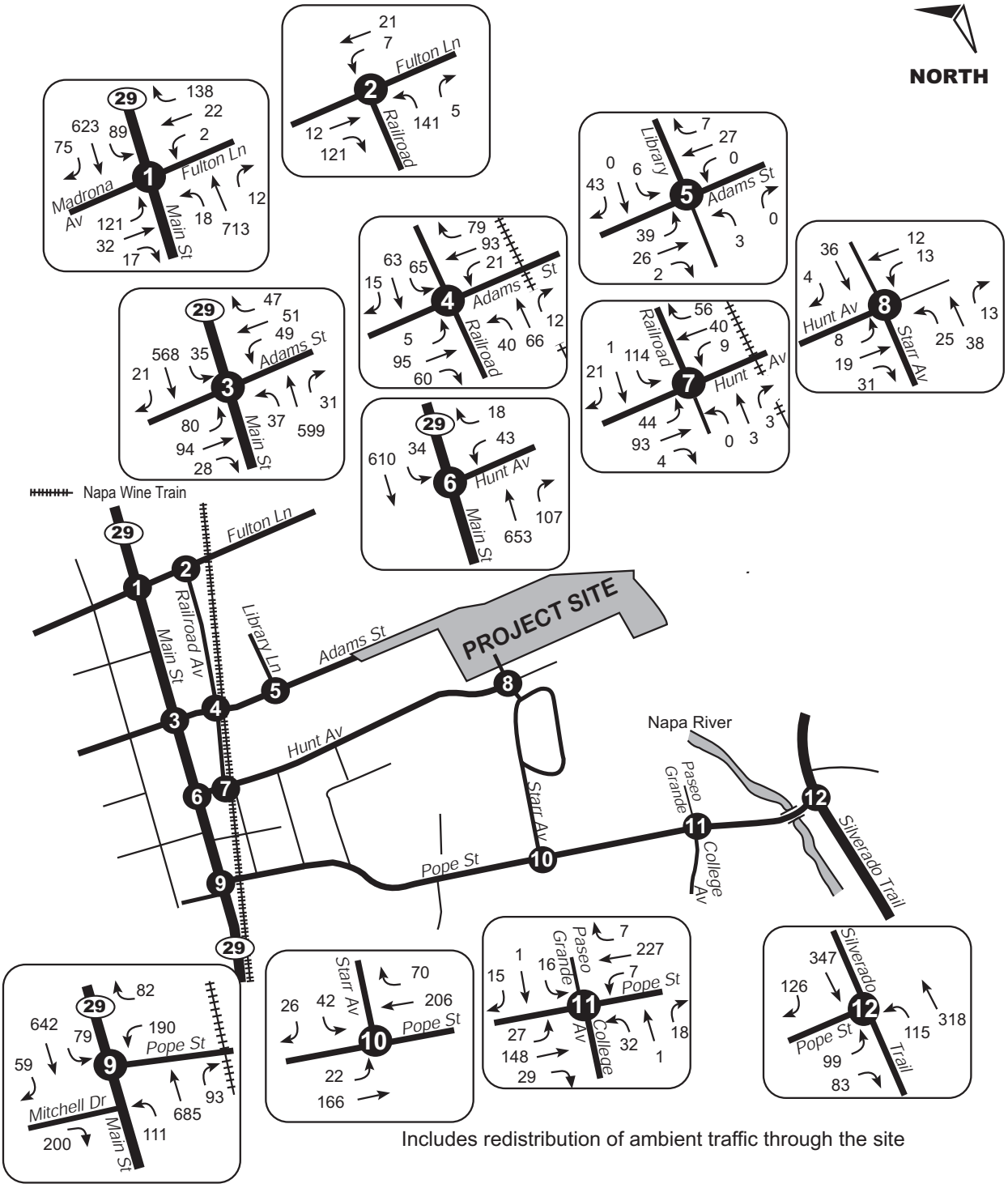


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-15

Hunter Residential Subdivision Project Draft EIR

Existing with Project Harvest Weekday PM Peak Hour Volumes

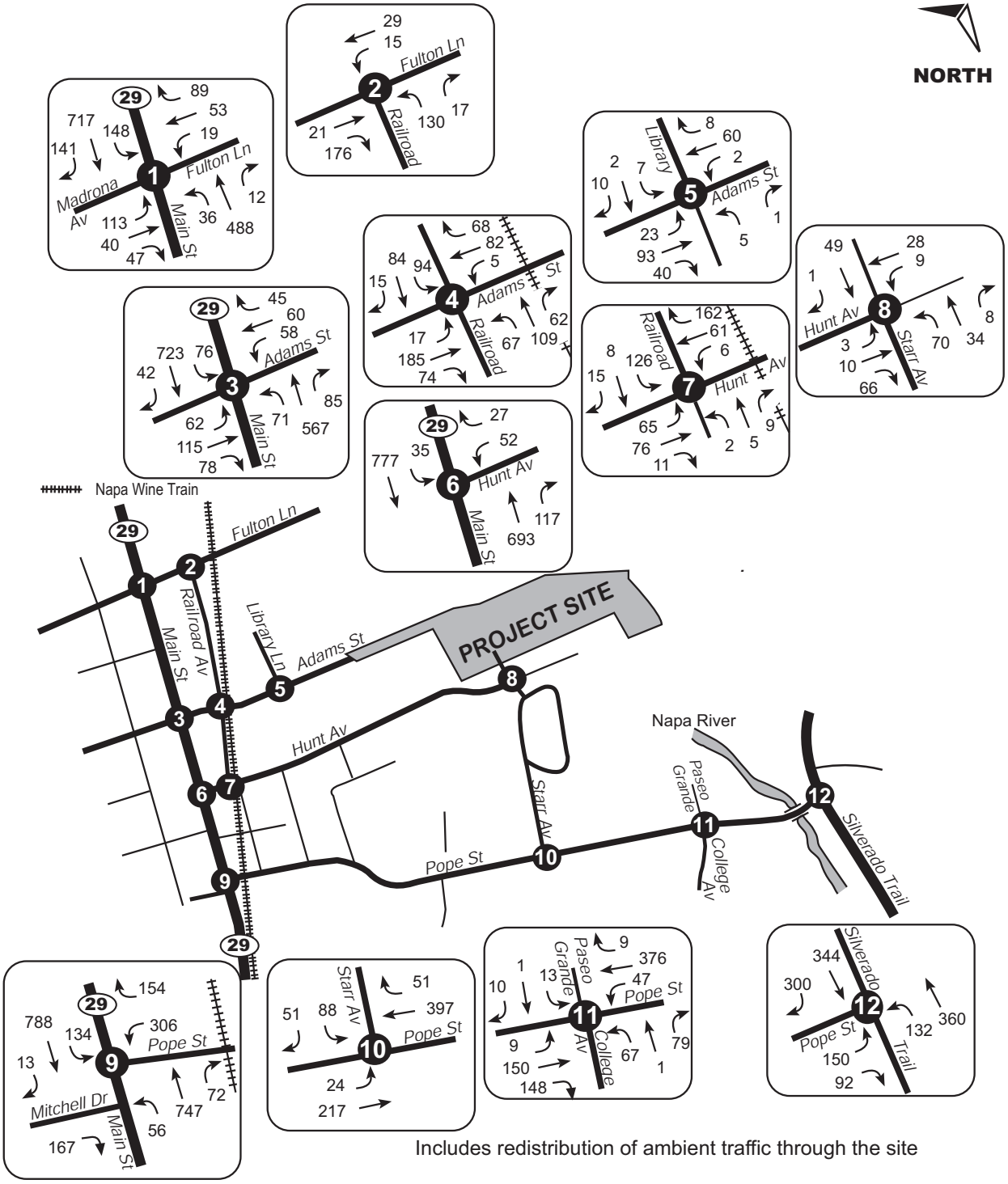


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-16

Hunter Residential Subdivision Project Draft EIR

Existing with Project Harvest Saturday PM Peak Hour Volumes

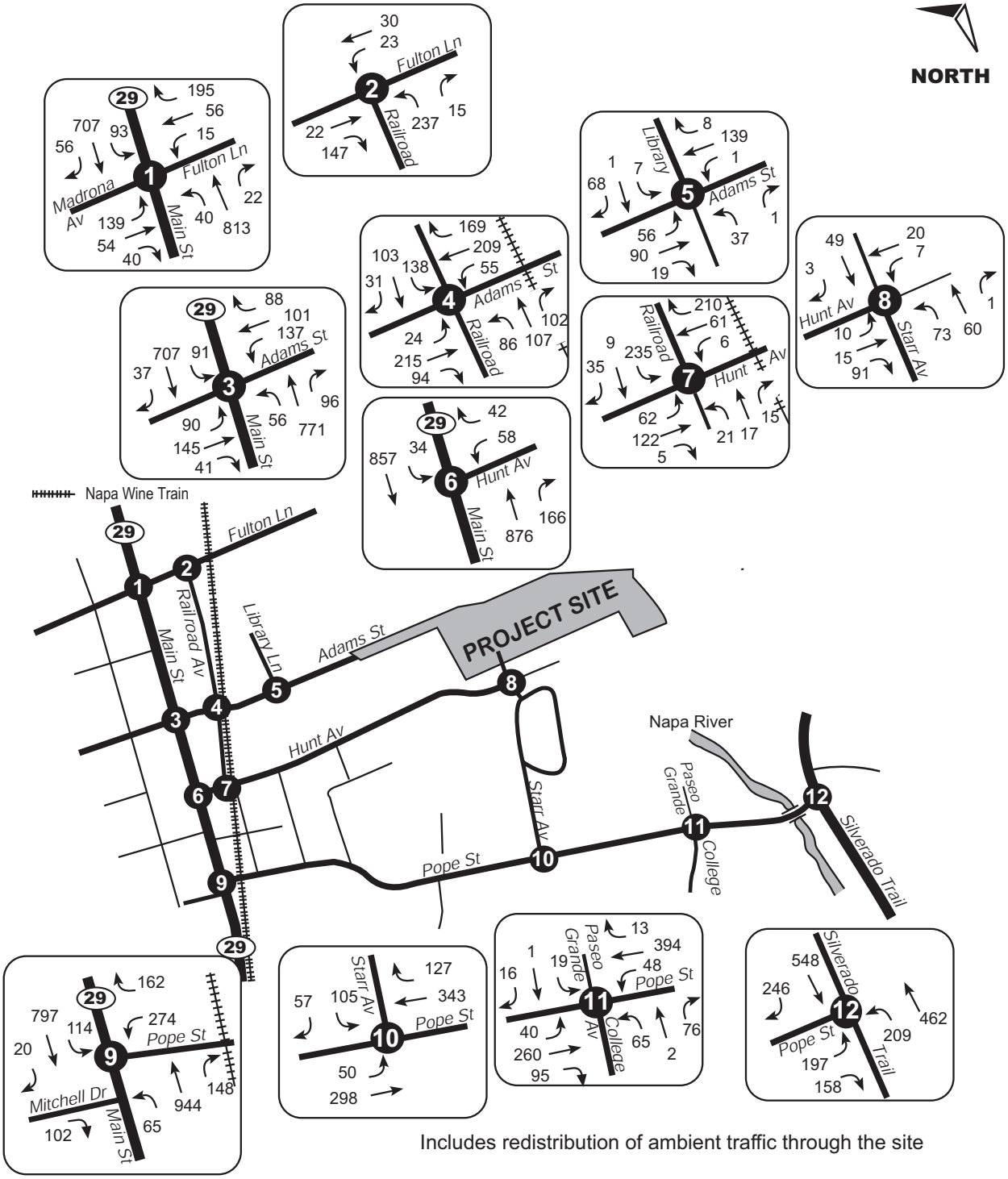


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-17

Hunter Residential Subdivision Project Draft EIR

Year 2030 with Project Harvest Weekday AM Peak Hour Volumes

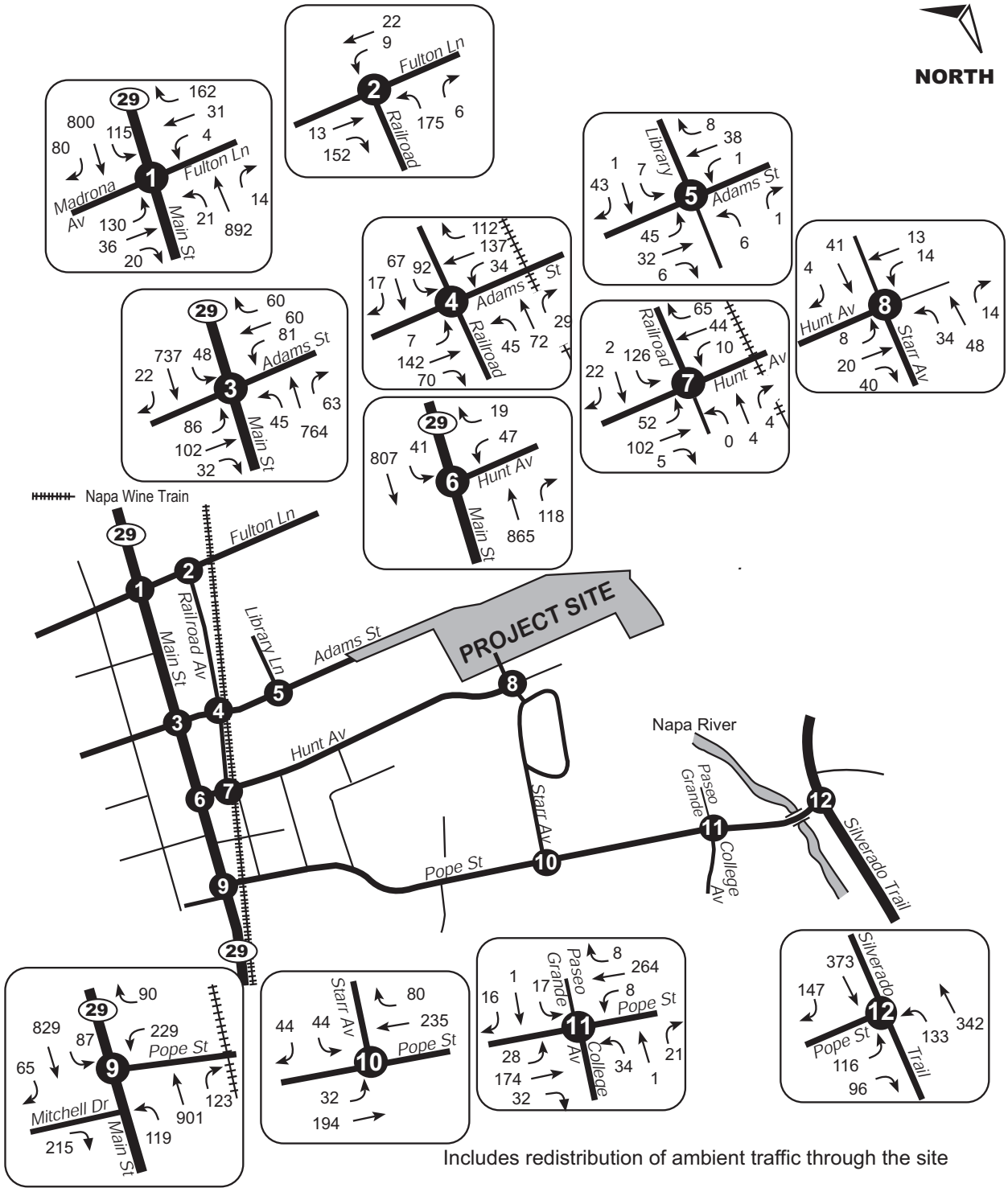


Prepared by: Crane Transportation Group, April 2012

Figure IV.L-18

Hunter Residential Subdivision Project Draft EIR

Year 2030 with Project Harvest Weekday PM Peak Hour Volumes



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-19

Hunter Residential Subdivision Project Draft EIR

Year 2030 with Project Harvest Saturday PM Peak Hour Volumes

one intersection, the project would not result in a change in intersection level of service except in one location, while delay would increase at many locations. However, due to the extension of Starr Avenue through the project some ambient traffic would be diverted. These diversions are shown in Figures E-7 through E-9 in Appendix E. This would result in a beneficial impact, decreasing delay at several intersections, specifically Adams Street/Railroad Avenue, and Hunt Avenue/Railroad Avenue.

Impact TRAF-1: Project traffic would add more than five seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach currently operates unacceptably at LOS F and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay will increase by 11 seconds during the weekday PM peak hour. (S)

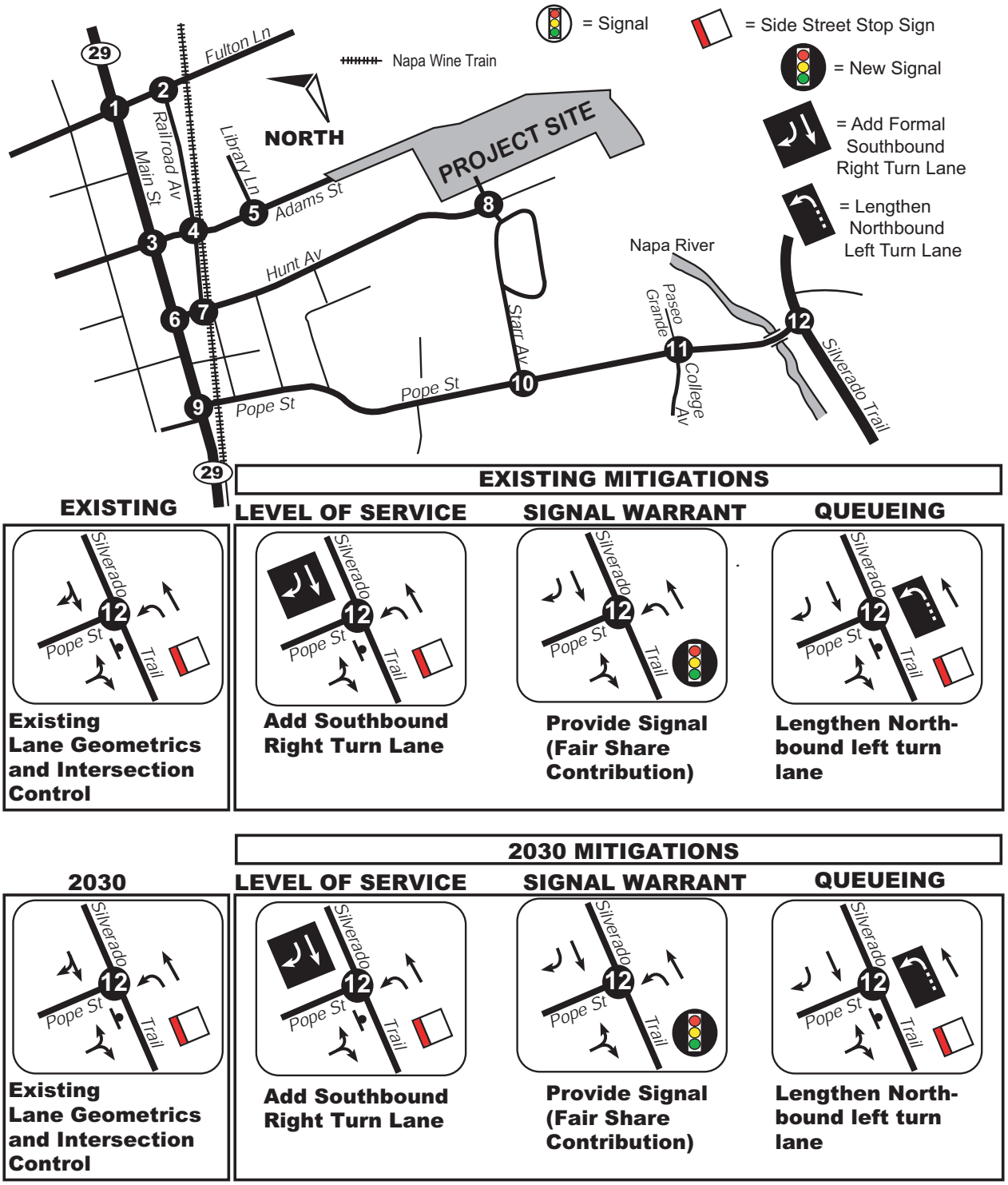
> Mitigation Measure TRAF-1: The project shall provide a fair share contribution to striping a right-turn lane on the southbound Silverado Trail approach, as this would reduce delay at this intersection to pre-project conditions (see Figure IV.L-20). (SU)

Impact TRAF-2: Project traffic volumes would not result in any unsignalized intersection meeting signal Warrant #3 criteria. The project would, however, contribute more than 1 percent increase in traffic to the Pope Street/ Silverado Trail intersection, where Rural Signal Warrant #3 criteria levels are currently met during the weekday AM and PM peak hours as well as during the Saturday peak traffic hour (see Table IV.L-13 for details of the project's contribution to volumes at the intersection). (S)

> Mitigation Measure TRAF-2: The project should provide a fair share contribution towards the signalization of the Pope Street/Silverado Trail intersection as well as any required lengthening of the left turn lane on the Silverado Trail northbound approach required for acceptable signalized operation (see Figure IV.L-20). (SU)

The California MUTCD multi-way stop control warrant analysis criteria indicate that peak hour volumes at the College Avenue/Pope Street/Paseo Grande intersection would not meet the multi-way stop warrant for any analysis time period.

Roadways/Highways (Existing + Project). The project would not add 3 percent to traffic volumes on the southbound SR 29 left turn lane at Hunt Avenue, or 1 percent to the total SR 29/Hunt Avenue intersection volumes. At this intersection the left-turn lane has been observed, and it is theoretically predicted, that 95th



Prepared by: Crane Transportation Group, April 2012

Figure IV.L-20

Hunter Residential Subdivision Project Draft EIR

Mitigated Existing & 2030 Lane Geometrics & Control: Pope St/Silverado Trail Intersection

TABLE IV.L-13 POPE/SILVERADO TRAIL INTERSECTION VOLUME CHECK

Time Period	Ambient Traffic Total of All Approaches	Left Turn Volumes	1% of Left Turn Volumes	1% of Intersection Total	Westbound Project Left Turns	Intersection Total
Existing AM	1,219	113	3	12	1	5
Existing PM	1,610	162	5	16	8	13
Existing Saturday	1,076	110	3	11	5	12
2030 AM	1,373	131	4	14	1	5
2030 PM	1,807	201	6	18	8	13
2030 Saturday	1,195	128	4	12	5	12

Source: Crane Transportation Group, 2012.

percentile queues will exceed available storage during the Saturday PM peak hour, independent of the proposed project. Given the project would not exceed the significance threshold; its impact would be less than significant.

The project would not add 3 percent to traffic volumes on the southbound SR 29 left turn lane at Pope Street, or 1 percent to the total SR 29/Pope Street intersection volumes where the left turn lane has observed and theoretically predicted 95th percentile queues exceeding available storage during the weekday AM and PM peak hours, as a result the project's impact would be less than significant.

Impact TRAF-3: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street as well as 1 percent to the total intersection volumes during the weekday PM peak hour, where the left turn lane has been observed, and where the theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM peak hours and Saturday PM peak hour. (S)

> Mitigation Measure TRAF-3: The project should provide a fair share contribution towards lengthening the northbound Silverado Trail left turn lane to accommodate storage demand and deceleration in coordination with signalization of this intersection. (SU)

Intersection (2030 + Project). Tables IV.L-3, IV.L-4, and IV.L-5 show that during the weekday AM and PM peak hours and Saturday PM peak hour, the project would not result in a change in intersection level of service except at one location, while delay would increase at many locations. However, due to the extension of Starr Avenue through the project some ambient traffic would be diverted. These diversions are shown in Appendix E (Figures E-7, E8, and E-9). This would result in a beneficial impact, decreasing delay at several intersections, specifically Adams Street/Railroad Avenue, and Hunt Avenue/Railroad Avenue.

Impact TRAF-4: Project traffic would add more than five seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach would operate unacceptably at LOS F, and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay would increase by 20 seconds during the weekday PM peak hour. (S)

> Mitigation Measure TRAF-4: Implement Mitigation Measure TRAF-2. (SU)

Impact TRAF-5: The project traffic volumes would not result in any unsignalized intersection meeting Warrant #3 criteria. The project would, however, contribute more than a 1 percent increase in traffic during the existing and 2030 Saturday peak hours to the Pope Street/Silverado Trail

intersection where Rural Signal Warrant #3 criteria levels would be met during all time periods. (S)

Mitigation Measure TRAF-5: Implement Mitigation Measure TRAF-2. (SU)

The California MUTCD multi-way stop control warrant analysis criteria indicate that peak hour volumes at the College Avenue/ Pope Street/Paseo Grande intersection would not meet the multi-way stop warrant for any analysis time period.

Roadways/Highways (2030 + Project). The project would not add 3 percent to traffic volumes on the southbound SR 29 left turn lane at Hunt Avenue, or 1 percent to the total SR 29/Hunt Avenue intersection volumes where the left turn lane would have theoretically predicted 95th percentile queues exceeding available storage during the Saturday PM peak hour independent of the proposed project. Given the project would not exceed the significance thresholds; its impact would be less than significant.

The project would not add 3 percent to traffic volumes on the southbound SR 29 left turn lane at Pope Street, or 1 percent to the total SR 29/Pope Street intersection volumes where the left turn lane would have theoretically predicted 95th percentile queues exceeding available storage during the weekday AM and PM and Saturday PM peak traffic hours. As a result the project's impact would be less than significant.

Impact TRAF-6: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street during the weekday PM peak hour. At this intersection the left turn lane has been observed, and theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM and Saturday PM peak hours. (S)

Mitigation Measure TRAF-6: Implement Mitigation Measure TRAF-3. (SU)

Transit. The project would incrementally add to existing transit ridership. The Napa County Public Transit Agency has estimated that five to twelve percent of project residents would use public transit and that the existing system in St. Helena could accommodate this increase. The net increase would not conflict with goals, plans or policies regarding public transportation in St Helena. The project is located near an existing bus stop (Hunt Avenue just west of Starr Avenue). The project's impact on transit would be less than significant.

Pedestrians and Bicyclists. The project would add to existing pedestrian and bicycle volumes in downtown St. Helena. The project would provide sidewalks along all street frontages and connect to the existing system of sidewalks. However, the project makes no provision for the planned Napa Valley Vine Trail along the extension of Starr Avenue and Adams Street.

Impact TRAF-7: The project would conflict with the Vine Trail portion of Napa County's Countywide Bike Plan, Napa County Regional Park Open Space District's Master Trail Plan, and the City's Draft General Plan Circulation Element as the project does not specifically provide for the Vine Trail along the extension of Starr Avenue and Adams Street. (S)

Mitigation Measure TRAF-7: The project shall provide Class II (signed and striped) bike lanes along the Starr Avenue and Adams Street roadway extensions. (LTS)

The applicant's engineer indicates that consideration is being given to provision of a Class I bike lane along one side of the extension of Starr Avenue (i.e., this would consist of a two-way bike path, separate from the vehicle travel way).[7]

(2) Project Design Hazards

On-site roadways are proposed as public streets and have been designed to meet the City's standards for subdivisions, detailed in the City's Zoning Code Section 17.124, which sets forth requirements for site development specific to parking, vehicle access and roadway design.

Streets are proposed for two-way traffic flow, and would have curb, gutter, and sidewalks on both sides within 56-foot and 60-foot rights-of-way. The extension of Starr Avenue northward through the site would intersect Hunt Avenue at a 90-degree angle, and at its intersection with Adams Street, the two roadways would meet at a 90-degree angle. The proposed 51 single-family lots would be served by Starr Avenue and three other streets: Streets A and B would run east-west though the site, extending eastward from intersections with Starr Avenue, and Street C would extend south from an intersection at the eastern end of Street B. Street A would curve southward to intersect Street B in the east portion of the site, forming a loop roadway system through the site. The site plan provides design details, including driveway locations for each proposed lot.

The 25 affordable housing units are proposed to be located on a rectangular lot located west of the single-family residence portion of the subdivision. A 25-foot wide driveway would run parallel to the rear lots fronting along the west side of Starr Avenue. Twenty-six covered parking spaces and 32 uncovered parking spaces would be provided for the residents and guests of the 25 units. Two driveways, both allowing two-way access, would intersect the south side of Adams Street. The easternmost driveway would be located about 48 feet from Adams Street/Starr Avenue intersection.

[7] Ryan Gregory, Civil Engineer, Reichers Spence Associates. Telephone communication with Crane Transportation Group, April 19, 2012.

The proposed development would comply with the following 2010 Draft General Plan policies and implementing actions:

> Policy CR1.1. *Promote a connected street network within the City to provide better internal automobile, bicycle, and pedestrian connections for residents. Where new streets are constructed, ensure they connect to dead-end roads and other streets to create a flexible network for residents.*
>
> Policy CR1.B. *Construct the following new roads and connections as any potential new development occurs. Where feasible, preserve existing rights-of-way.*
> - Starr Avenue extension north to Adams Street.
> - Adams Street from its current eastern terminus to Starr Avenue.

In the 1993 General Plan, Starr Avenue is planned as a collector street that will extend between Mills Lane and Adams Street, providing a much-needed north-south route on the east side of St. Helena. The existing dimension of Starr Avenue is wide, allowing for on-street parking and Class II bike lanes on both sides of the street, plus 12-foot vehicle travel lanes. However, recent General Plan Update workshops indicate the desire to narrow Starr Avenue north of Hunt Avenue, creating a "slower, more residential-scale" street.[8] This is reflected in the site plan which shows a narrower curb to curb dimension in contrast to the existing section of Starr Avenue, as well as driveways lining the west side of the extension of Starr Avenue. As stated under Mitigation Measure TRAF-7, the applicant's engineer indicates that consideration is being given to provision of a Class I bike lane along one side of the extension of Starr Avenue (i.e., this would consist of a two-way bike path, separate from the vehicle travel way).[9]

[8] Greg Desmond, St Helena Planning Director. Telephone discussion with Crane Transportation Group, April 30, 2012.

[9] Ryan Gregory, Civil Engineer, Reichers Spence Associates. Telephone communication with Crane Transportation Group, April 19, 2012.

V. ALTERNATIVES

The CEQA Guidelines require analysis of a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would substantially lessen the project's significant impacts, even if those alternatives "impede to some degree the attainment of the project objectives, or would be more costly."[2]

The following discussion is provided to meet the requirement of the CEQA Guidelines and provide the public and decision makers with information that will help them understand the adverse impacts and benefits associated with three potential alternatives to the proposed project. A discussion of the environmentally superior alternative is also provided, as required by CEQA. The three alternatives are as follows:

- The **No Project/No Build Alternative**, which assumes that the Hunter Subdivision Project would not be developed. The existing 16.9-acre site would remain vacant and undeveloped, with no development on the project site.
- The **Reduced Density Alternative**, which assumes that the Hunter Subdivision Project would be developed as is proposed under the project with a reduced density of 3.10 dwelling units per acre (du/acre). This would result in a maximum of 50 units on the site. This alternative would also include an additional pocket park accessed from the Adams Street extension.
- The **Residential/Agricultural Preserve Alternative**, which assumes that approximately 6.5 acres on the eastern end of the site proposed as single-family lots in the Hunter Subdivision project would be preserved as Agricultural Preserve. Development would occur in the remainder of the site, retaining the density of 5.1 du/acre, resulting in a maximum of 50 units on the site (versus 87 units). This alternative would also include an additional

[1] *CEQA Guidelines*, Section 15126.6.
[2] *CEQA Guidelines,* Section 15126.6(b).

pocket park accessed from the Adams Street extension adjacent to the multi-family residential.

In considering the range of alternatives to be analyzed in an EIR, the CEQA Guidelines state that an alternative site/location should be considered when feasible alternative locations are available and the "significant effects of the project would be avoided or substantially lessened by putting the project in another location." Relocation of the project to another location within St. Helena may eliminate the impact to this site, but would likely result in some of the same impacts and possibly others at the alternative site, such as traffic, agriculture, hydrology, water quality, water supply and cultural resources, etc. As all of the undeveloped sites within the City's urban limits are also prime agricultural land with an urban overlay. They are also all in close proximity to the downtown, the Napa River and would have similar cultural resources and traffic impacts. As such, an alternative site location is not considered in detail.

The remainder of this chapter is organized as follows: overview of project objectives and impacts; description and analysis of CEQA project alternatives; and discussion of environmentally superior alternatives.

A. PROJECT OBJECTIVES AND IMPACTS

To determine what range of alternatives should be considered, the impacts identified for the proposed project were considered along with the project objectives. The proposed project is described in detail in Chapter III, Project Description, and the potential environmental effects of the proposed project are analyzed in Chapter IV, Setting, Impacts, and Mitigation Measures. The project objectives and impacts are summarized below.

1. Project Objectives

The Hunter Subdivision Project objectives include:

1. Subdivide the site consistent with the City's General Plan and Zoning for the site to accommodate residential development.
2. Provide opportunities to develop a variety of housing types, including multi-family, single-family, and accessory granny units, affordable to a range of incomes including, very low, low and moderate-income households.
3. Assist the City to achieve the adopted Housing Element policies related to workforce and affordable housing and assist in meeting the City's Regional Housing Needs Allocation (RHNA).
4. Minimize traffic-related environmental impacts, such as noise, air quality and greenhouse gases by lowering commute patterns for St. Helena workers by providing more local housing opportunities.

5. Support alternative transportation by providing a pedestrian and bicycle link through St. Helena eventually connecting the regional Vine Trail from Calistoga to the Vallejo Ferry.
6. Exceed the City's green building ordinance and incorporate sustainable design features including water conservation measures, drought resistant landscaping with low flow watering systems, south and west side tree placement to reduce reliance on air conditioning units and pre-wiring for photovoltaic systems.
7. Implement the General Plan Circulation Element by completing the extensions of Adams Street and Starr Avenue.
8. Provide for increased property tax and other revenues to the City of St. Helena from residential construction on the project site.
9. Minimize City water use by continuing the utilization of an on-site water well for irrigation of project landscaped areas.

2. Project Impacts

As discussed in Chapter IV, Setting, Impacts, and Mitigation Measures, and in the Initial Study, and as shown in Table II-1, the project would result in a number of potentially significant impacts. The following impacts identified could be mitigated to a less-than-significant level with implementation of the recommended mitigation measures:

- AES-1: The proposed project could create a new source of light and glare affecting day and nighttime views.
- AIR-1: Construction of the proposed project could contribute substantially to an existing or projected air quality violation.
- BIO-1: Development of the proposed project could potentially harm nesting special-status or common migratory birds.
- BIO-2: Development of the proposed project could potentially impact portions of the drainage ditch which is Section 404 waters of the U.S. (S)
- CULT-1: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could adversely impact previously discovered or undiscovered potentially significant cultural and archaeological resources.
- CULT-2: Ground-disturbing activities associated with site preparation and the construction of building foundations and underground utilities could disturb human remains, including those interred outside of formal cemeteries.
- GEO-1: Occupants of the development proposed under the project could be subject to seismic hazards.
- GEO-2: Damage to structures or property could result from unstable, expansive, or corrosive soils.

- HAZ-1: Residual agricultural chemical residues may be present at the project site at concentrations that could affect the health and safety of construction workers and future site residents.
- HYD-1: Construction period activities within project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of Napa River and downstream receiving waters.
- HYD-2: Operational period activities at the project site could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade the water quality of the Napa River and downstream receiving waters.
- HYD-3: The proposed project could result in development within the 100-year flood hazard zone and increase flood inundation depths at and away from the site.
- HYD-4: Flooding associated with a levee breech or overtopping could endanger residents and improvements.
- NOISE-1: The proposed project would result in a temporary increase above ambient noise levels in the project vicinity during the construction phase.
- SVCS-1: The proposed project could place an added demand on the City's potable water resources of approximately 12 acre-feet per year (AF/year) (the analysis estimated 11.74 AF/year). Non-potable water for outdoor use would be supplied by the existing on-site well and would not draw from City supplies.
- TRAF-7: The project would conflict with the Vine Trail portion of Napa County's Countywide Bike Plan, Napa County Regional Park Open Space District's Master Trail Plan, and the City's Draft General Plan Circulation Element as the project does not specifically provide for the Vine Trail along the extension of Starr Avenue and Adams Street.
- TRAF-8: The proposed project does not provide two points of emergency access to the multi-family parcel.

The following impacts are significant and unavoidable, and cannot be reduced to a less-than-significant level with implementation of mitigation measures. After mitigation, the revised project would result in the following **significant unavoidable** impacts:

- AGRI-1: Development of the project site would convert Prime Farmland to non-agricultural use.

- AIR-2: Heavy-duty diesel equipment used during clearing, grading, and construction would emit DPM and TACs that would temporarily affect local air quality and possibly affect nearby sensitive receptors.
- TRAF-1: Project traffic would add more than 5 seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach currently operates unacceptably at LOS F and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay will increase by 11 seconds during the weekday PM peak hour.
- TRAF-2: Project traffic volumes would not result in any unsignalized intersection meeting signal Warrant #3 criteria. The project would, however, contribute more than 1 percent increase in traffic to the Pope Street/Silverado Trail intersection, where Rural Signal Warrant #3 criteria levels are currently met during the weekday AM and PM peak hours as well as during the Saturday peak traffic hour.
- TRAF-3: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street as well as 1 percent to the total intersection volumes during the weekday PM peak hour, where the left turn lane has been observed, and where the theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM peak hours and Saturday PM peak hour.
- TRAF-4: Project traffic would add more than 5 seconds average delay at the unsignalized Pope Street/Silverado Trail intersection, where the stop sign controlled Pope Street approach would operate unacceptably at LOS F, and where signal warrants are currently met. With project traffic volumes added to the Pope Street/Silverado Trail intersection, delay would increase by 20 seconds during the weekday PM peak hour.
- TRAF-5: The project traffic volumes would not result in any unsignalized intersection meeting Warrant #3 criteria. The project would, however, contribute more than a 1 percent increase in traffic during the existing and 2030 Saturday peak hours to the Pope Street/Silverado Trail intersection where Rural Signal Warrant #3 criteria levels would be met during all time periods.
- TRAF-6: The project would add 3 percent to traffic volumes on the northbound Silverado Trail left turn lane at Pope Street during the weekday PM peak hour. At this intersection the left turn lane has been observed, and theoretically predicted 95th percentile queues would exceed available storage during the weekday AM and PM and Saturday PM peak hours.

The Initial Study concludes that impacts would be less than significant for all other environmental topics.

Cumulative impacts are discussed in Chapter VI, CEQA Required Assessment Conclusions. The EIR concludes that the proposed project would significantly contribute to significant cumulative impacts related to agricultural and forest resources, air quality, and traffic.

The following alternatives analysis considers alternatives that would further reduce or avoid remaining significant and unavoidable impacts.

B. CEQA PROJECT ALTERNATIVES

Using the project objectives and the significant impacts identified for the proposed project, the City selected a reasonable range of project alternatives to be analyzed within the EIR. The alternatives analyzed below include the following:

- No Project/No Build Alternative
- Reduced Density Alternative
- Residential/Agricultural Preserve Alternative

Following is a discussion of each CEQA project alternative, and an analysis of the anticipated environmental impacts. The emphasis of the analysis is on the comparison of the anticipated impacts of each alternative to the impacts associated with the proposed project. The discussion includes a determination as to whether the alternative would or would not reduce, eliminate, or create new significant impacts.

1. No Project/No Build Alternative

a. Description

The No Project/No Build Alternative assumes that the project site would remain in its existing condition and would not be subject to development. There would be no structures constructed on the project site, and the existing site would remain vacant, and retain the existing vineyards on a portion of the site.

b. Relationship with Project Objectives

The No Project/No Build Alternative would not achieve the project objectives. The project site would continue to remain vacant and underutilized, thereby failing to achieve the project objectives of providing opportunities to develop a variety of housing types, and assisting the City in achieving the adopted Housing Element's regional housing needs allocation. Furthermore, this alternative would not be consistent with the City's General Plan and Zoning if it does not accommodate residential development, and therefore would not meet the project objectives.

c. Impact Analysis

The potential impacts of the No Project/No Build Alternative are described in the following section.

(1) Aesthetic Resources

Under the No Project/No Build Alternative, the project site would remain undeveloped and a portion of it would be maintained as vineyard. As no development would result under the No Project/No Build Alternative, there would be no impacts related to light and glare. The visual character of the project site under this alternative would be the same as the existing conditions described in the setting subsection of Chapter IV.A, Aesthetic Resources.

(2) Agricultural and Forest Resources

Under the No Project/No Build Alternative, the project site would remain undeveloped and a portion of it would be maintained as vineyard. As no development would result under the No Project/No Build Alternative, the significant impact related to the loss of prime agricultural land would not occur with this alternative.

(3) Air Quality

This alternative would not change the existing air quality. Under this alternative, there would be no new construction or an increase in vehicle trips. However, while this alternative would not contribute to regional emissions, the San Francisco Bay Area Air Basin (SFBAAB) would still be in nonattainment status for ozone, PM10 and PM2.5. The two construction period air quality impacts identified for the proposed project would not occur with this alternative.

(4) Biological Resources

The No Project/No Build Alternative would not change the existing biological conditions. Since no new construction would occur, no biologically sensitive resources or wetlands would be impacted and there would be no impact to wildlife species that could be located onsite.

(5) Cultural and Paleontological Resources

Implementation of the No Project/No Build Alternative would not result in any grading or new construction. As such, this alternative would not have any associated grading or ground disturbance associated with construction. Because no ground-disturbing activities would occur as part of the No Project/No Build Alternative, subsurface archaeological, paleontological, and Native American resources that could occur within the project site would not be disturbed. As a result, the two cultural resources impacts identified for the proposed project would not occur under this alternative.

(6) Geology, Soils and Seismicity

Under the No Project/No Build Alternative, the project site would continue to be susceptible to seismic hazard and differential settlement, as are identified under the proposed project. However, given that the project site would remain undeveloped and would continue in agricultural production, no new residents or visitors would be exposed to potential seismic ground shaking.

(7) Greenhouse Gas Emissions

Under the No Project/No Build Alternative, there would not be construction or an increase in vehicle trips. Since there would be no new construction, there would be no direct GHG emissions from construction equipment and worker trips. Given that the project site would remain undeveloped and would continue in agricultural production, there would also be no new GHG emissions from the land uses. As a result, this alternative would not result in any impacts on greenhouse gas (GHG) emissions.

(8) Hazards and Public Safety

Implementation of the No Project/No Build Alternative would keep the site in its existing condition. As such, it would not create significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or create a significant hazard to the public or the environment through reasonable foreseeable upset or accident conditions involving the release of hazardous materials into the environment. This alternative would not expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based pain and asbestos) during demolition.

(9) Hydrology and Water Quality

The No Project/No Build Alternative would not result in any new development, and the project site would remain undeveloped and in agricultural production. This alternative would not result in an increased amount of runoff that could affect stormwater conveyance systems or degradation of water quality in receiving waters. As dewatering would not occur on the project site, construction workers and the public would not be exposed to potential contaminants in the soil and groundwater.

(10) Noise and Vibration

The No Project/No Build Alternative would not result in noise impacts associated with the construction of the proposed project. Additionally, under this alternative there would be no new residential units exposed to traffic noise sources. Noise currently generated on the project site, such as noise from agricultural equipment, would continue.

(11) Public Services, Recreation, and Utilities

The No Project/No Build Alternative would not result in any residential development on the project site. As such, there would be no increased demand for

schools, libraries, recreational facilities, as well as water, wastewater or other utility services.

(12) Traffic and Transportation

The No Project/No Build Alternative would not change the existing traffic conditions. The Pope Street/Silverado Trail intersection within the study area would continue to operate at the existing levels shown in Table IV.L-3. Traffic conditions in 2030 under this alternative are projected to be at the levels shown for the 2030 without Project Conditions in Table IV.L-3. This alternative would not increase the delays at any intersection, and the applicant would not contribute to the improvements of any intersections. The seven traffic-related significant impacts identified for the proposed project would not occur under this alternative.

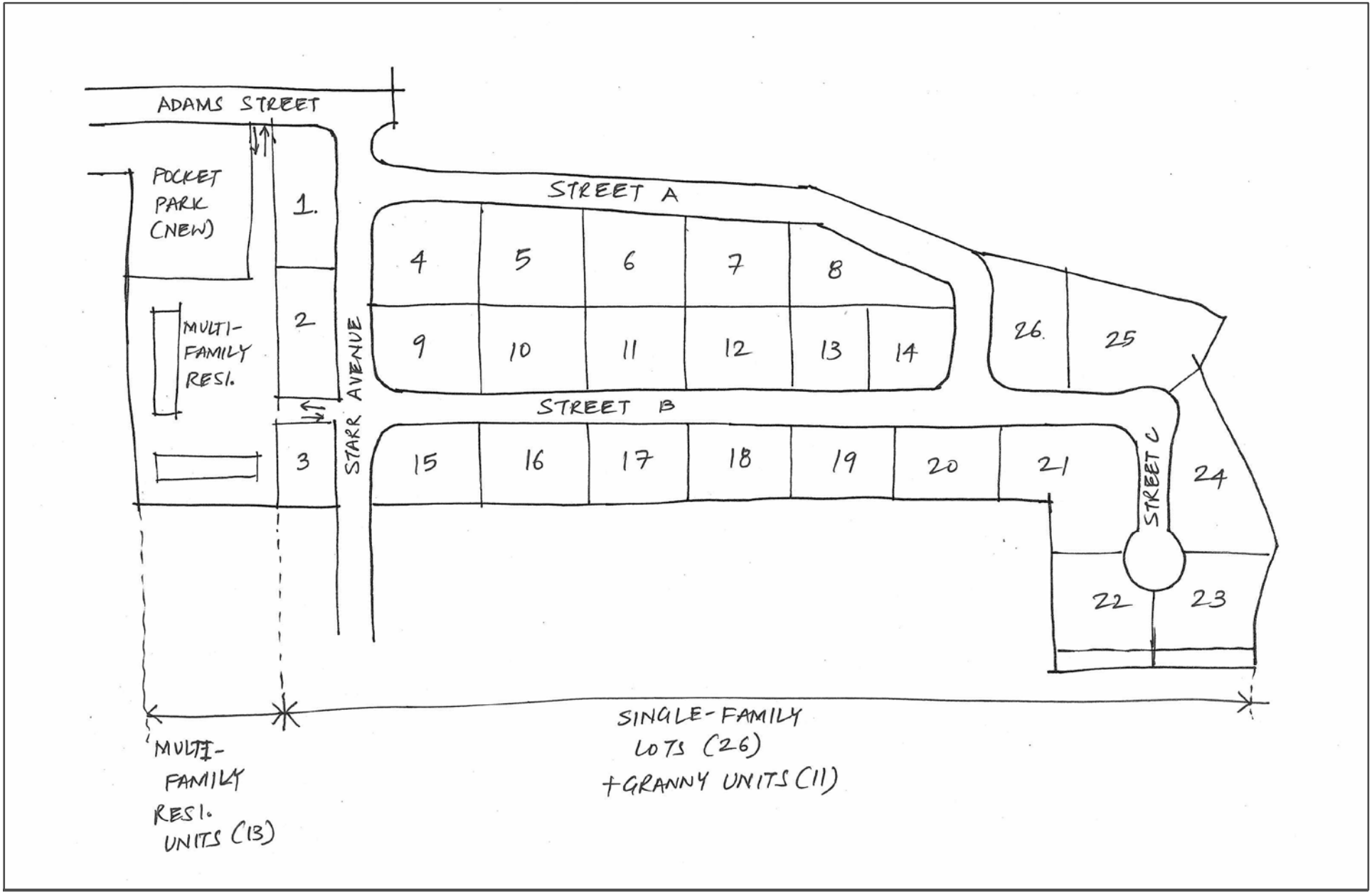
2. Reduced Density Alternative

a. Description

The Reduced Density Alternative would develop the project site at a lower density (approximately 3.1 du/acre versus 5.1 du/acre) than the proposed project. This alternative would subdivide the 16.9-acre parcel into 26 single-family lots (versus 51), a 3.4-acre parcel for multi-family residential, and a 0.06-acre remainder parcel that would be non-buildable. The 26 single-family lots could be developed with up to 26 single-family market-rate housing units (one dwelling per lot) and accessory/granny units on 11 of the single-family lots that may be income restricted. The 3.4-acre multi-family parcel could accommodate up to 13 income-restricted workforce units (versus 25 units), with a new 0.75-acre pocket park. A conceptual layout of the subdivision design in shown in Figure V-1.

As part of the Reduced Density Alternative, the site's MDR (Medium Density Residential) General Plan designation would need to be amended to LDR (Low Density Residential) which allows for a density range of 1.0 to 5.0 du/acre. The site would also need to be rezoned from MR (Medium Density Residential) to LDR (Low Density Residential).

Primary access to the site under the Reduced Density Alternative would remain as per the proposed project with development of an extension of Adams Street and Starr Avenue onto the project site. Streets A, B and C would also be developed as per the proposed project. The parcel sizes for the single-family lots would be larger than the proposed project and would range in size between 14,000 and 16,000 square feet (versus 7,000 and 8,000 square feet). The multi-family residential parcel would still remain approximately 3.4 acres, but would



Prepared by: Urban Planning Partners, May 2012.

Figure V-1
Hunter Subdivision Project EIR
Reduced Density Alternative: Conceptual Site Layout

now include a 0.75-acre pocket park accessed from the Adams Street extension. There would be two access points for the multi-family residential units; one from Adams Street, just west of its intersection with Starr Avenue, and the other would be from the west end of Street B off of the Starr Avenue extension. The portion of the site south of the proposed Adams Street extension would preserve the existing vineyards, as per the proposed project. Table V-1 compares the Reduced Density Alternative to the proposed project.

TABLE V-1 REDUCED DENSITY ALTERNATIVE SCENARIO COMPARED TO THE PROPOSED PROJECT

Use	Reduced Density Alternative	Proposed Project	Difference Between Project and Alternative
Single-Family Lots	26	51	-25
Granny/Accessory Units	11	11	0
Multi-Family units	13	25	-12
Total Number of Units	**50**	**81**	**-27**
Open Space/Non Buildable Area (Acres)	**0.81**	**0.06**	**0.75**

b. Relationship with Project Objectives

The Reduced Density Alternative would meet all the objectives of the proposed project, except for the following:

- Subdivide the site consistent with the City's General Plan and Zoning for the site to accommodate residential development.

c. Impact Analysis

The potential impacts of the Reduced Density Alternative are described in the following section.

(1) Aesthetic Resources

The Reduced Density Alternative would have comparable aesthetics impacts to the proposed project. Since the site is currently undeveloped and vacant, under this alternative, the project would still impact the existing visual character of the site; although similar to the proposed project, the impact would be less than significant. This alternative would also introduce new sources of light and glare to the site, which would be mitigated to a less-than-significant level with the implementation of Mitigation Measure AES-1 recommended for the proposed project.

(2) Agricultural and Forest Resources

The development of the Reduced Density Alternative would result in the conversion of Prime Farmland to a non-agricultural use, similar to the proposed project. The implementation of Mitigation Measure AGRI-1 would reduce this impact but it would remain significant and unavoidable.

(3) Air Quality

Under the Reduced Density Alternative, construction related air impacts would be similar to, but incrementally less than, the proposed project, and the Mitigation Measure AIR-1 identified for construction related dust, and exhaust emissions would also reduce this alternative's potential construction related air quality impact to a less-than-significant level. The exhaust that would be generated from trips associated with the proposed project would also be reduced under this alternative since only 50 units are proposed to be developed versus 87 from the proposed project.

Also, implementation of emission control Mitigation Measure AIR-2 would reduce emission from heavy-duty diesel equipment to the extent feasible, but the impact would not be reduced to less than significant for all receptors, given the close proximity of the residences and day care facilities to the project site. Therefore, the impact would remain significant and unavoidable with mitigation, similar to the proposed project.

(4) Biological Resources

Under the Reduced Density Alternative, the existing nesting habitat along the perimeter of the site could be affected during construction. As with the proposed project, this alternative could potentially impact raptors including the white-tailed kite. Although this alternative, like the proposed project, would not remove trees or shrubs, construction noise and disturbance in the vicinity of the nesting habitat could result in nest abandonment. This alternative would also impact a small area of wetlands, like the proposed project. Implementation of the biological resources Mitigation Measures BIO-1 and BIO-2 identified for the proposed project would reduce the potential biological impact to a less-than-significant level for this alternative.

(5) Cultural and Paleontological Resources

This alternative would result in ground disturbing activities associated with construction that could disturb subsurface archaeological, paleontological, and Native American resources that could occur within the project site. The mitigation measures recommended for the proposed project, CULT-1 and CULT-2, would also reduce the potential cultural resources impacts to a less-than-significant level for this alternative.

(6) Geology, Soils, and Seismicity

Under the Reduced Density Alternative, residents would still be exposed to seismic ground shaking, corrosive soils and potentially filled sites that could

potentially impact proposed developments. However, it would expose fewer residents given the reduced number of units proposed in this alternative. As with the proposed project, these potential impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures GEO-1 and GEO-2.

(7) Greenhouse Gas Emissions

Under the Reduced Density Alternative, there would still be direct GHG emissions from construction equipment and worker trips, but emissions would be comparatively lesser in number due to the reduced number of units proposed in this alternative. Since these emissions were already below the BAAQMDs threshold for the proposed project and were determined to be less than significant, the impact would also be less than significant for the Reduced Density Alternative.

(8) Hazards and Public Safety

Construction would occur under this alternative, and residual concentrations of agricultural chemicals may be present in the soil at the project site, which could expose construction workers or the future site residents to hazardous materials during and following construction activities, or expose workers or the future site residents to airborne toxics, (e.g., lead-based pain and asbestos) during demolition. Level of impact for this alternative would be similar to the proposed project. Implementation of the Mitigation Measure HAZ-1 recommended for the project would also reduce this potential impact to a less-than-significant level.

(9) Hydrology and Water Quality

The Reduced Density Alternative would result in the construction of 50 units on the project site (versus 87 for the proposed project). While development under this alternative would not be as intense at the proposed project, the impervious surface and runoff associated with this alternative may be slightly less than the proposed project since the lots would be larger, and could still degrade the water quality of Napa River and downstream receiving waters. Construction and operational activities could result in the degradation of water quality. This alternative could result in development within a 100-year flood hazard zone, and the flooding associated with a levee breech or overtopping could endanger residents and improvements. However, all of these impacts could be reduced to a less-than-significant level with implementation of the Mitigation Measures HYD-1 through HYD-4 recommended for the project discussed in Section IV.I, Hydrology and Water Quality, in this EIR.

(10) Noise and Vibration

Construction noise associated with this alternative would be similar to the proposed project and would result in a temporary increase above ambient noise levels in the project vicinity during the construction phase. The implementation of the Mitigation Measure NOISE-1 recommended for the project would reduce this potential noise impact to a less-than-significant level.

(11) Public Services, Recreation and Utilities

This alternative would result in the construction of approximately 57 percent of the proposed project's units. As such, this alternative would result in an incremental reduction in the demand for public services when compared to the project and would not result in any significant impacts for public services or recreational facilities.

The Reduced Density Alternative would also result in an added demand on the City's potable water resources for the site, but it would be significantly less than the proposed project. As with the proposed project, Mitigation Measure SVCS-1 would reduce this impact to a less-than-significant level.

(12) Traffic and Transportation

The Reduced Density Alternative would result in the construction of maximum 50 units, which is approximately 57 percent of the proposed project's units. This reduction in units would be enough to reduce each of the significant transportation impacts identified for the proposed project to a less-than-significant level.

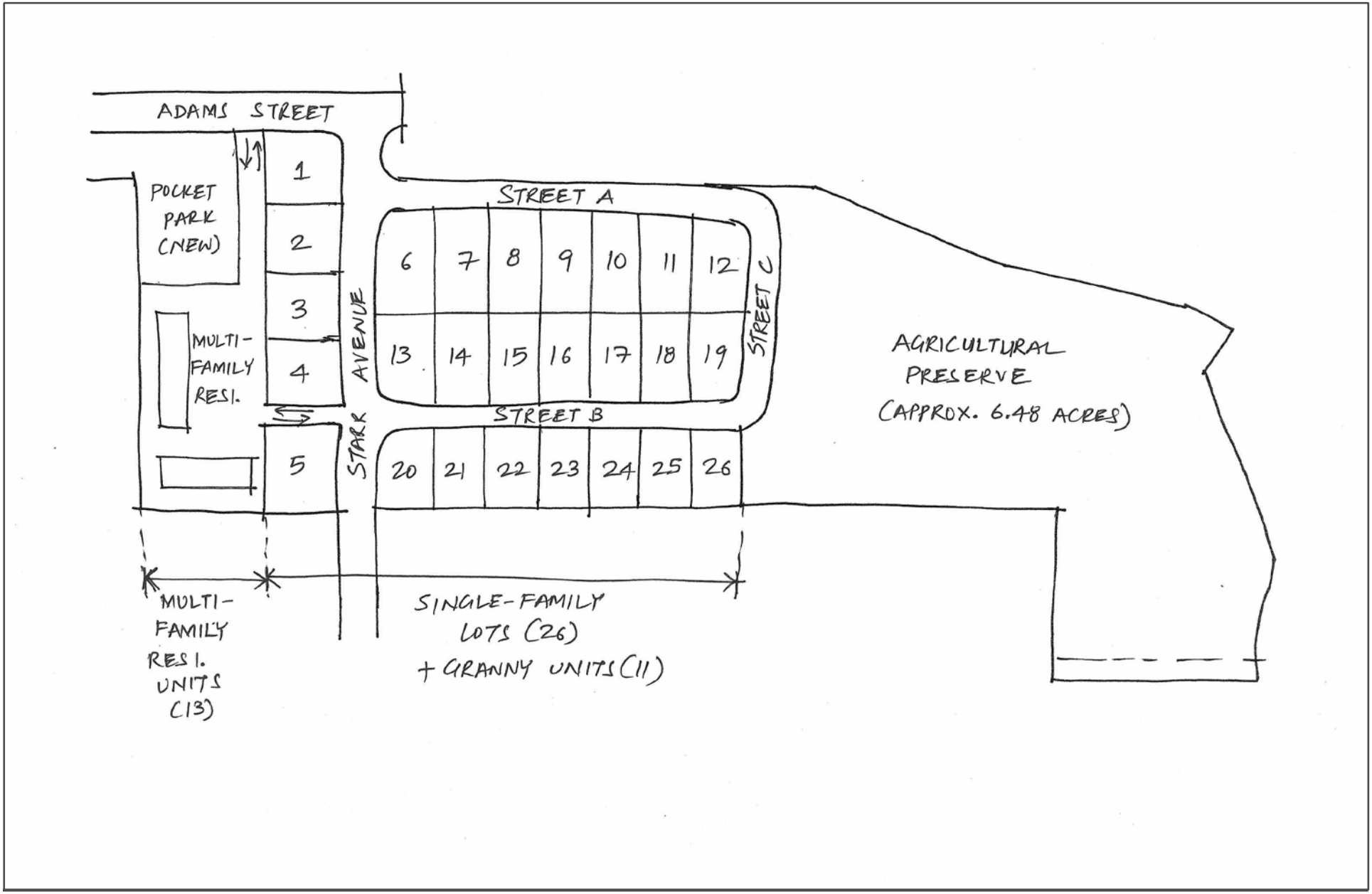
3. Residential/Agricultural Preserve Alternative

a. Description

The Residential/Agricultural Preserve Alternative would develop the project site at the same density as the proposed project, but with a reduced number of units, located in approximately half of the project site. This alternative would subdivide the 16.9-acre parcel into 26 single-family lots (versus 51 lots), on approximately 7.34-acres, a 2.4-acre parcel for multi-family residential, and a 6.48-acre remainder parcel towards the Napa River that could be reserved for agricultural uses. The 26 single-family lots could be developed with up to 26 single-family market-rate housing units (one dwelling per lot) and accessory/ granny units on 11 of the single-family lots that may be income restricted. The 2.4-acre multi-family parcel could accommodate up to 13 income-restricted workforce units (versus 25 units), with a new 0.62-acre pocket park. There would now be a total open space of 7.16 acres on the project site. This would result in a maximum of 50 units built on approximately 9.75 acres resulting in a density of 5.1 du/acre. A conceptual layout of the subdivision design is shown in Figure V-2.

As part of the Residential/Agricultural Preserve Alternative, a General Plan Amendment and Rezoning would be required for the 6.48-acre parcel that would be reserved for Agriculture purposes. The Medium Density Residential Land Use designation would be modified to OS (Open Space) and zoning changed to AP (Agriculture Preserve).

Primary access to the site under the Residential/Agricultural Preserve Alternative would remain as per the proposed project with development of an extension of Adams Street and Starr Avenue onto the project site. Streets A and B would also



Prepared by: Urban Planning Partners, May 2012.

Figure V-2
Hunter Subdivision Project EIR
Residential/Agricultural Preserve Alternative: Conceptual Site Layout

be developed as per the proposed project but would loop around the eastern edge of the built parcels as Street C to provide an access to the open space. The parcel sizes for the single-family lots would remain the same as the proposed project and would range in size between 7,000 and 8,000 square feet. The 3.4-acre multi-family residential parcel from the proposed project would now include a 0.62-acre pocket park, accessed from Adams Street. There would be two access points for the multi-family residential units; one from Adams Street, just west of its intersection with Starr Avenue, and the other from the west end of Street B off of the Starr Avenue extension. A 0.06-acre portion of the site south of the proposed Adams Street extension would preserve the existing vineyards, as per the proposed project. The remainder parcel of approximately 6.48 acres east of the single-family lots would be developed for an open space/agriculture use, overlooking the Napa River. Table V-2 compares the Residential/Agricultural Preserve Alternative to the proposed project.

b. Relationship with Project Objectives

The Residential/Agricultural Preserve Alternative would meet all the objectives of the proposed project, except for the following:

- Subdivide the site consistent with the City's General Plan and Zoning for the site to accommodate residential development.

c. Impact Analysis

The potential impacts of the Residential/Agricultural Preserve Alternative are described in the following section.

(1) Aesthetic Resources

The Residential/Agricultural Preserve Alternative would have comparable aesthetic impacts to the proposed project on a portion of the site. Since the project site is currently undeveloped and vacant, this alternative would also degrade the existing visual character of the site and introduce new sources of light and glare to the site. However, there would be limited impacts to views from the surrounding residential neighborhoods southeast of the site (Vineyard Valley Mobile Home Park) as this portion of the site would be used for agricultural uses. Views from the Hunts Grove apartments towards the site would be similar as that of the proposed project. Impacts due to light and glare could also be reduced to a less-than-significant level with the implementation of Mitigation Measure AES-1.

(2) Agricultural and Forest Resources

This alternative proposes to develop only part of the site and reserve approximately half of the site for agricultural uses. However, the development would still result in the conversion of Prime Farmland to a non-agricultural use in the built part of the site. The impacts on agricultural resources due to the

TABLE V-2 RESIDENTIAL/AGRICULTURAL PRESERVE ALTERNATIVE SCENARIO COMPARED TO THE PROPOSED PROJECT

Use	Residential/ Agricultural Preserve Alternative	Proposed Project	Difference Between Project and Alternative
Single-Family Lots	26	51	-25
Granny/Accessory Units	11	11	0
Multi-Family units	13	25	-12
Total Number of Units	**50**	**87**	**-27**
Open Space/Non Buildable Area (Acres)	**7.16**	**0.06**	**7.10**

Residential/Agricultural Preserve Alternative would be significantly less than those of the proposed project, but would remain significant and unavoidable.

(3) Air Quality

Under the Residential/Agricultural Preserve Alternative, construction related air impacts would be similar to, but incrementally less than, the proposed project, and the Mitigation Measure AIR-1 identified for construction related dust, and exhaust emissions would also reduce this alternative's potential construction related air quality impact to a less-than-significant level. The exhaust that would be generated from trips associated with the proposed project would also be reduced under this alternative since only 50 units are proposed to be developed versus 87 from the proposed project.

Also, implementation of emission control Mitigation Measure AIR-2 would reduce emission from heavy-duty diesel equipment to the extent feasible, but the impact would not be reduced to less than significant for all receptors, given the close proximity of the residences to the project site. Therefore, the impact would remain significant and unavoidable with mitigation, similar to the proposed project.

(4) Biological Resources

Under the Residential/Agricultural Preserve Alternative, the existing nesting habitat along the perimeter of the site could be affected during construction. As with the proposed project, this alternative could potentially impact raptors including the white-tailed kite. Although this alternative, like the proposed project, would not remove trees or shrubs, construction noise and disturbance in the vicinity of the nesting habitat could result in nest abandonment. Implementation of the biological resources Mitigation Measure BIO-1 identified for the proposed project would reduce the potential biological impact to a less-than-significant level for this alternative. Implementation of this alternative

would avoid impacting the small drainage/wetland that would be impacted by the proposed project.

(5) Cultural and Paleontological Resources

This alternative would result in ground disturbing activities associated with construction that could disturb subsurface archaeological, paleontological, and Native American resources that could occur within the project site. The mitigation measures recommended for the proposed project, CULT-1 and CULT-2, would also reduce the potential cultural resources impacts to a less-than-significant level for this alternative.

(6) Geology, Soils and Seismicity

Under the Residential/Agricultural Preserve Alternative, grading activities and building foundations would be subject to similar geologic and seismic conditions and constraints as the proposed project. An earthquake on a nearby fault could result in strong seismic shaking at the project site. Hence, residents would still be exposed to seismic ground shaking, corrosive soils and potentially filled sites that could potentially impact proposed developments. Like with the proposed project, these potential impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures GEO-1 and GEO-2.

(7) Greenhouse Gas Emissions

Under the Residential/Agricultural Preserve Alternative, there would still be direct GHG emissions from construction equipment and worker trips, but would be comparatively lesser in number due to the reduced number of units proposed in this alternative. Since these emissions were already below the BAAQMDs threshold for the proposed project and were determined to be less than significant, the impact would also be less than significant for the Residential/Agricultural Preserve Alternative.

(8) Hazards and Public Safety

The Residential/Agricultural Preserve Alternative involves development on the site at a reduced intensity compared with the proposed project. Construction would still occur under this alternative, and residual concentrations of agricultural chemicals may be present in the soil at the project site, which could expose construction workers or the future site residents to hazardous materials during and following construction activities, or expose workers or the future site residents to airborne toxics, (e.g., lead-based pain and asbestos) during demolition. This alternative would have a similar level of hazards impact as the proposed project. Implementation of the Mitigation Measure HAZ-1 would reduce the potential impact to a less-than-significant level.

(9) Hydrology and Water Quality

The Residential/Agricultural Preserve Alternative involves development on a reduced portion of the proposed project site, and would thus result in a reduced amount of runoff that could affect stormwater conveyance systems. As with the

proposed project, construction workers and the public would be exposed to potential contaminants in the soil and groundwater related to dewatering on-site, and this alternative would still however, degrade the water quality of Napa River and downstream receiving waters, but this potential impact would be reduced by the reduction in site area and development. Like the proposed project, all of these impacts could be reduced to a less-than-significant level with implementation of the Mitigation Measures HYD-1 and HYD-2, as discussed in Section IV.I, Hydrology and Water Quality, in this EIR.

Since this alternative proposes development towards the western section of the site leaving the portion of the site towards the Napa River as open space or for agricultural uses, the project would result in minimal development within the 100-year flood hazard zone, and the flooding associated with a levee breech or overtopping would not endanger residents and improvements. Hence, there would be no impacts HYD-3 and HYD-4 due to the Residential/Agricultural Preserve Alternative.

(10) Noise and Vibration

Construction noise associated with this alternative would be incrementally lesser to the proposed project since less construction would occur, but it would still result in a temporary increase above ambient noise levels in the project vicinity during the construction phase. The implementation of Mitigation Measure NOISE-1 would reduce this potential noise impact to a less-than-significant level.

(11) Public Services, Recreation and Utilities

This alternative would result in the construction of approximately 57 percent of the proposed project's units. As such, this alternative would result in an incremental reduction in the demand for public services when compared to the project and would not result in any significant impacts for public services or recreational facilities.

The Residential/Agricultural Preserve Alternative would also result in an added demand on the City's potable water resources for the site, but it would be significantly less than the proposed project. As with the proposed project, Mitigation Measure SVCS-1 would reduce this impact to a less-than-significant level.

(12) Traffic and Transportation

The Residential/Agricultural Preserve Alternative would result in the construction of maximum 50 units, which is approximately 57 percent of the proposed project's units. This reduction in units would be enough to reduce each of the significant transportation impacts identified for the proposed project.

C. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that an EIR identify the environmentally superior alternative. This EIR concludes that the No Project/No Build Alternative is the environmentally superior alternative in the strict sense that environmental impacts associated with its implementation would be the least of all the alternatives examined, to the extent that no construction activity would occur. While this alternative would be environmentally superior in the technical sense that contribution to these aforementioned impacts would not occur, this alternative would not meet many of the project objectives, nor offer the environmental benefits identified, such as development of the vacant property with a residential use that is consistent with the City's General Plan and Zoning, improved stormwater management, aesthetics (landscaping), and groundwater/soil clean-up.

In cases like this where the No Project/No Build Alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. Comparison of the environmental impacts associated with each alternative as described above, indicates that the Residential/Agricultural Preserve Alternative would be considered the second most environmentally superior alternative. Under this alternative, there would be a reduction in potential impacts to Prime Farmland, hydrology, and traffic impacts as only a portion of the site would be developed. This alternative would result in significantly fewer trips and associated air quality emissions compared to the proposed project. As there would be limited development on the site, the potential impact to biological resources and water quality would be reduced. It would meet all the project objectives except consistency with the City's General Plan and Zoning for the site.

VI. CEQA REQUIRED ASSESSMENT CONCLUSIONS AND CUMULATIVE IMPACTS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from implementation of the Hunter Subdivision Project: effects found not to be significant; growth-inducing impacts; significant unavoidable environmental impacts; significant irreversible changes; and cumulative impacts.

A. EFFECTS FOUND NOT TO BE SIGNIFICANT

Meetings among representatives of the City of St. Helena departments involved in project planning and review and consultants for the City were held to preliminarily determine the scope of the Environmental Impact Report (EIR). In addition to these meetings, a Notice of Preparation (NOP) was circulated on September 23, 2011, and a public scoping session was held for the project on December 6, 2011. Written comments received on the NOP and public comments received during the scoping meetings were considered in the preparation of the final scope for this document and in the evaluation of the proposed project.

The environmental topics analyzed in Chapter IV, Setting, Impacts, and Mitigation Measures, represent those topics that generated the greatest potential controversy and expectation of adverse impacts among City staff and members of the public. The following topics were excluded from discussion in the EIR because it was determined in the Initial Study and during the scoping phase that these impacts would be less-than-significant: Land Use and Planning; Mineral Resources; and Population and Housing. A detailed description of the project's impacts related to each of these topics is provided in the Initial Study (see Appendix A incorporated herein by reference).

B. GROWTH-INDUCING IMPACTS

This section summarizes the project's growth-inducing impacts on the surrounding community. Consistent with section 1512b.2 (d) of the CEQA Guidelines, a project is considered growth-inducing if it could directly or indirectly foster economic or population growth or the construction of additional housing. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped.

The proposed project would not have growth inducing effects. While the project site is currently undeveloped, suburban development of a similar type and density is located just south and west of the site. Significant undeveloped areas such as agricultural land and open space areas are adjacent to the project site to the north and east respectively. These areas are either outside the Urban Limit Line or designated for non-urban uses.

The proposed project would subdivide the site into residential lots (51 single-family with 11 accessory/granny units, and 25 multi-family units). The proposed project would add a maximum of 87 dwelling units on the currently vacant site, and would result in population growth. However, the development of the project area is contemplated in the City of St. Helena General Plan, adopted in 1993, and in the current Draft General Plan Update, which is currently in process. The site is also identified as a key opportunity housing site in the 2007-2014 Housing Element certified in 2009.

C. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

As discussed at the end of each topical section in Chapter IV, Setting, Impacts, and Mitigation Measures, the project would have the following significant and unavoidable impacts after mitigation:

- Agriculture and Forest Resources
- Air Quality
- Traffic and Transportation

D. SIGNIFICANT IRREVERSIBLE CHANGES

CEQA requires that EIRs assess whether the proposed project could result in significant irreversible changes to the physical environment. These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. The CEQA Guidelines discuss three categories of significant irreversible changes that should be considered. Each is discussed below.

1. Changes in Land Use which Commit Future Generations

The project would commit future generations to development on approximately 16.9 acres of the project site. While 0.06 acres of the project site would remain undeveloped with existing vineyards retained, the majority of the site would be developed with single- and multi-family residential dwellings. The project would convert undeveloped land to residential and public right-of-way uses. This would result in permanently committing future generations to development on the site.

2. Irreversible Damage from Environmental Accidents

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to implementation of the proposed project. The use of hazardous materials (beyond standard construction supplies and household hazardous waste) is not proposed. Furthermore, compliance with federal, State, and local regulations and the implementation of Mitigation Measures identified in Section IV.H, Hazards and Public Safety, would reduce to a less-than-significant level the possibility that hazardous substances within the project site could cause significant environmental damage. No other potential environmental effect of the project would reach the point of creating irreversible damage from foreseeable accidents given the land uses proposed.

3. Consumption of Non-Renewable Resources

Consumption of non-renewable resources includes the use of non-renewable energy sources, conversion of agricultural lands, and loss of access to mining reserves. Because the site has not been used for mineral extraction, loss of access to any minerals that historically occurred on-site would not be considered significant. Implementation of the Hunter Subdivision Project would require electricity, natural gas, and possibly other forms of energy. However, the scale of such consumption for the proposed uses would be typical for a residential development of this size. The proposed project would incorporate energy-conserving features, as required by the Uniform Building Code and the California Energy Code (Title 24, Part 6).

Currently, 32 percent of the site is planted in vineyards. However, the site is not zoned for agriculture, nor does a Williamson Act contract exist on the site. A portion of the vineyards would be retained on the site after development. The site has a buffer of land to the north designated parks and recreation beyond which is the Urban Limit Line where existing agricultural uses cannot be developed for urban uses. The project would convert prime agricultural land to urban uses as consistent with the existing and Draft General Plan Update for the City of St. Helena.

E. CUMULATIVE IMPACTS

CEQA defines cumulative as “two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts.” Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project’s incremental effect is cumulatively considerable. “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. These impacts can result from a

combination of the proposed project together with other projects causing related impacts. "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."

1. Methodology

When evaluating cumulative impacts, CEQA allows the use of either a list of past, present, or reasonably anticipated relevant projects, including projects outside the control of the lead agency, or a summary of the projections in an adopted planning document. The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. For example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

The City of St. Helena recently prepared an EIR for its Draft General Plan Update. The Draft General Plan Update and the EIR provide projections of planned growth and a comprehensive analysis of anticipated cumulative growth and its associated impacts. Although the General Plan Update has not yet been adopted, and as such does not technically constitute "an adopted planning document", its projections and the analysis in the associated EIR are used to guide this analysis given that the proposed project falls within the development projections of both the existing and proposed General Plan and the Draft General Plan EIR represents the most current information. The City also provided a project-specific list of past, present, or reasonably anticipated relevant projects that are considered as appropriate in some of the sections (e.g., transportation) as shown in Table VI-1. As a result this cumulative analysis utilizes a combination of the list and projections approach.

As discussed above, the geographic area for evaluating cumulative impacts can vary depending on the specific topic being analyzed. Recognizing this, the cumulative discussions included below explain the geographic scope of the area affected by each cumulative effect (e.g., watershed or air basin) and drawn on the information in the cumulative growth scenario consistent with the defined geographic area. The geographic area considered for each cumulative impact

TABLE VI-1 CUMULATIVE PROJECT LIST

Project	Size
1. Elm Tree Heights	1 Single-Family Unit
2. Adams Street Property	40,000 SF Office 40,000 SF Commercial
3. Wydown Hotel	8-Room Expansion
4. Grandview Hotel and Restaurant	57-Room Hotel 40-Seat Restaurant
5. Vineland Station	60-Room Hotel 123,954 SF Commercial/Retail
6. Carl Doumani	40,000 SF Office 40,000 SF Commercial
7. Montessori School	Buildout (Remaining 2/3 of Approved Construction)
8. Magnolia Oaks Subdivision	30 Single-Family Units 15 Apartment Units

Source: City of St. Helena, 2012.

depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, only development within the vicinity of the project would contribute to a cumulative visual effect; in assessing air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect.

2. Cumulative Effects of the Proposed Projects

The following analysis examines the cumulative effects of the proposed projects. The potential cumulative effects of the proposed projects are summarized below for each of the topics that are analyzed in Chapter IV of the EIR.

a. Aesthetic Resources

The geographic area considered for the aesthetic cumulative analysis includes the area in immediate proximity to the project site including the Napa River and the Howell Mountains beyond it on the east of the site, existing vineyards to the north, the residential development to the south and the St. Helena downtown towards the west. This area was defined because it includes the project site, the immediately surrounding neighborhoods, and the surrounding urban and geographical context for the project.

As analyzed throughout the Aesthetic Resources section, the proposed project would not result in a significant aesthetic impact by creating a substantial

adverse effect on a scenic vista; substantially damaging scenic resources; nor would it substantially damage a scenic resource, including, but not limited to, trees, rock outcroppings, and historic buildings located within a state or locally designated scenic highway. It would however, result in a significant aesthetic impact to the existing visual character or quality of the site and its surroundings.

Implementation of the proposed project would alter the visual character of the site and the surrounding area, but the change was not identified as significant. When considering the proposed project together with past, present, and reasonably foreseeable future projects that may be constructed in the surrounding area, the amount of change from this project would not be considered significant because it is consistent with the scale and density of urban uses located adjacent to the proposed project along the southern and western boundary of the project site and could not contribute to future development to the north and east where the land is either designated Parks and Recreation or is beyond the urban limit line. One project on the cumulative project list is in the vicinity of the project to the west on Adams Street and could create a potential cumulative effect. However, it is consistent with commercial and more urban uses closer to the downtown. For these reasons, the incremental change to the visual resources associated with development of this project would not be significant.

The proposed project is consistent with the City's General Plan Land Use designation for the site and together with reasonably foreseeable future development projects is subject to the City's design review process. The purpose of the design review process is to consider the design treatment and relationship of buildings to the surrounding built environment and ensure no significant adverse aesthetic impacts would result. Thus, the proposed project would not combine with, or add to, any potential adverse aesthetic impacts that may be associated with other cumulative development.

Cumulative development in combination with the proposed project would result in new buildings of similar size and scale being developed one vacant infill site in the area. A consideration of reasonably foreseeable future development reveals that the project is generally consistent with adopted plans and the overall vision for the area. Based on the information in Section IV.A, Aesthetic Resources, of this document and for the reasons summarized above, the project would not contribute to any significant adverse cumulative aesthetic impacts when considered together with past, present, and reasonably foreseeable future development. Therefore, the proposed project would have a less-than-significant cumulative impact on aesthetics.

b. Agricultural and Forest Resources

The geographic area considered for the agriculture cumulative analysis includes Napa County. This area was defined because of the importance of agricultural resources to the region.

As analyzed in the Agriculture and Forest Resources section, the proposed project would result in a significant and unavoidable agriculture or forest resource impact by converting Prime Farmland to non-agricultural use; it would, however, not involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

When considered together with past, present, and reasonably foreseeable future projects, the project's contribution to the loss of Prime Farmland within the Napa Valley could be considered cumulatively significant. The implementation of Mitigation Measure AGRI-1 would reduce this impact but not to a less-than-significant level.

c. Air Quality

The geographic area considered for the air quality cumulative analysis includes the entire Bay Area region regulated by the Bay Area Air Quality Management District (BAAQMD). The 2011 BAAQMD CEQA Air Quality Guidelines state that if the individual emissions from a project would not result in an increase in ROG, NOx, PM2.5, or PM10 that exceeds the project-level significance criteria, then the project would not be considered to contribute considerably to a significant cumulative effect. Section IV.C, Air Quality, includes a discussion of cumulative and future conditions related to air quality. The analysis concluded that the impact from PM2.5 and TAC was found to be significant and unavoidable at the project level due to the project boundary's near proximity to existing residences, and therefore, the cumulative impact from PM2.5 and TAC would also be considered a significant and unavoidable cumulative impact.

d. Biological Resources

The geographic area considered for the biological cumulative analysis is the entire City of St. Helena. This area was defined because it includes the project site, the immediately surrounding neighborhoods, and the larger City context for the project.

As described in Section IV.D, Biological Resources, implementation of the project would have a less-than-significant impact on riparian habitats, sensitive plants and vegetative communities. Potentially significant biological resources impacts include impacts are to nesting special-status birds like raptors, including the white-tailed kite, and to wetlands. With implementation of Mitigation Measures BIO-1 and BIO-2, potential impacts would be reduced to a less-than-significant

level. Consequently, the project would not result in significant cumulative effects.

e. Cultural and Paleontological Resources

The geographic area considered for the cultural and paleontological cumulative analysis includes the Napa Valley. This area was defined because cultural and paleontological resources are uniquely identified by geographic region.

Construction activities associated with the proposed project and cumulative projects could result in significant impacts to unidentified archaeological and paleontological resources, and human remains. However, like the proposed project, the cumulative projects would be subject to extensive mitigation measures designed to protect unidentified cultural and paleontological resources. Such mitigation would include the monitoring of construction areas and ensuring that the recovery of human remains is reported to the proper authorities. With implementation of the proposed mitigation measures, the proposed projects would not result in any significant and unavoidable impact. Therefore, project would not contribute to any significant cumulative cultural and paleontological resources impact.

f. Geology, Soils, and Seismicity

The geographic area considered for the geological cumulative analysis includes the area surrounding the site since impacts are confined to the site and there no potential geologic effects that would effect a more extensive area.

Potential cumulative geology and seismic impacts do not extend far beyond a project's boundaries, since such geological impacts are typically confined to discrete spatial locations and do not combine to create an extensive cumulative impact. The exception to this generalization would occur where a large geologic feature (e.g., fault zone, massive landslide) might affect an extensive area, or where the development effects from the project could affect the geology of an off-site location. These circumstances are not present on the project site, and do not apply to the proposed project.

Many existing buildings (i.e., past projects) in the surrounding area have been built in accordance with building code requirements for geotechnical and seismic safety in effect at the time of building construction. Present and future projects within the project's geographic area are subject to enhanced requirements and result in reduced geologic and seismic hazards. As present and future projects replace aging infrastructure and older structures with new, more regulated projects, the potential for cumulative seismic risks is incrementally reduced over time.

g. Greenhouse Gas Emissions

Greenhouse Gas (GHG) emissions contribute to a cumulative impact that is global and not confined to a geographic area. The BAAQMD sets Air Quality Thresholds of Significance for GHG that states that projects that comply are not considered "cumulatively considerable."

As discussed in Section IV.G, Greenhouse Gas Emissions, the proposed project would cause an increase in GHG emissions of 864 metric tons of CO2e annually, which is less than the BAAQMD threshold of 1,100 metric tons per year. Therefore, the project's GHG emissions would be considered less than significant and not considered "cumulatively considerable."

h. Hazards and Public Safety

The geographic area considered for the cumulative analysis of hazards and public safety includes the project site and adjacent uses. This area was defined because hazardous and public safety-related impacts are site specific.

Past, present, and reasonably foreseeable future development adjacent to the proposed project site would not compound or increase environmental impacts related to hazards and hazardous materials. Hazards, hazardous materials and public safety impacts are generally site-specific and/or have limited mobility, and would not be expected to have cumulatively considerable effects beyond the proposed project site. Construction and operational activities in the area surrounding the proposed project site could increase the potential exposure of people to hazardous materials, including contaminated soil, soil gas, and groundwater; however, the use, storage, and disposal of hazardous materials are regulated by federal, State, and local laws and regulations. Future handling of hazardous materials at the proposed project site and adjacent properties would be subject to these laws and regulations, and as a result, the cumulative hazardous materials risks would not be significant. Therefore, development of the proposed project site would not result in any significant cumulative hazards and public safety impacts.

i. Hydrology and Water Quality

The geographic area considered for the hydrology cumulative analysis includes the area surrounding the site and the 100-year flood plan for the Napa River. This area was defined because it includes the areas of potential impact for drainage and flooding.

Development of the project would result in an increase in impervious surface area and an increase in the amount of storm water generated in the project area. Construction and operational impacts to stormwater that would result from implementation of the proposed project would be minimized through implementation of the SWPPP. Existing General Plan Policy 9.4.1 and Draft

General Plan Update policies PF3.A and PF3.E require review of development plans by the City to ensure that new development provides adequate storm drainage infrastructure and that post-project runoff is limited to pre-project peak flow rates for the five- and ten-year storms. Other current, pending or foreseeable projects in St. Helena would be required to undergo the same stormwater maintenance measures, and would not result in cumulative adverse impacts to water quality.

The project is located in the current 100-year flood plain which is under review by the Federal Emergency Management Agency (FEMA). When FEMA completes its review of the final as-built specifications, certifies the levee, and revises the applicable Flood Insurance Rate Map (FIRM), project will be outside of the 100-year flood-plain and the levee will have official regulatory status. The potential for the levee to fail would be considered a very low probability event and therefore, levee failure under CEQA will be considered a less-than-significant impact. Mitigation Measures HYD-3 and HYD-4 address potential flood risks given that the project is currently in the 100-year flood plain.

j. Noise and Vibration

The geographic area considered for the noise cumulative analysis includes the area in close proximity to the project site including Napa River and the Howell Mountains on the east of the site, existing vineyards to the north, the residential development to the south and the St. Helena downtown towards the west. This area was defined because it is within range of potential noise impacts.

Cumulative noise analysis considers both short-term construction related noise and longer-term operational and traffic related noise. Short-term noise impacts are related to the noise generated by heavy equipment operating on the site. Site preparation phases are typically the loudest phases of construction due to the types of equipment used.

The worst case combined noise level during this phase of construction would be approximately 88 A-weighted decibels (dBA) Lmax at a distance of 50 feet from an active construction area. The impacts from construction noise would be reduced to less-than-significant levels with implementation of recommended mitigation measures included in Section IV.J, Noise and Vibration. With implementation of these mitigation measures, this cumulative impact would be considered less than significant.

Longer-term noise from cumulative development in the area is modeled for the year 2030 and shown in Section IV.J, Table IV.J-5. This modeling indicated that during peak hour traffic, the noise from vehicles traveling on Adams Street and Starr Avenue would not increase the noise level over 5 dBA. Therefore, cumulative noise impacts from traffic noise along the projects access roads would be less than significant.

k. Public Facilities, Recreation, and Utilities

The geographic area considered for the cumulative analysis of public facilities, recreation and utilities includes the entire city. This area was defined because public facilities, recreation, and utilities are limited to the city boundaries.

Development of the proposed project would result in a cumulative increase in the demand for public services, parks, and recreation facilities and utilities. This cumulative increase could result in the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives. However, future development would occur pursuant to General Plan policies and mitigation measures adopted for the General Plan that reduce the potential impact on services to less-than-significant levels (including payment of the City's development impact fees and school fees). As a result, development of the project together with the impact of planned and future development would not result in significant cumulative public service impacts.

Development of the proposed project would increase the demand on utility providers and infrastructures in St. Helena. None of the various public services or utilities analyzed would experience significant impacts that could not be mitigated to a less-than-significant level. As such, no significant cumulative impact would result. The water supply analysis determined that there is adequate water supply for the project as well as future development in St. Helena while conforming to the City's Safe Yield limit of 1,950 acre feet per year of available water supply.

l. Traffic and Transportation

The geographic area considered for the transportation cumulative analysis includes the City of St. Helena and regional County roadways that serve the City.

Section IV.L, Traffic and Transportation, includes a detailed analysis of the cumulative and future conditions related to transportation. Development of the proposed project would contribute to a significant adverse cumulative traffic impact at the Pope Street/Silverado Trail intersection under the 2030 cumulative conditions scenario, without signalization improvements. Please refer to the discussion in Section IV.L for cumulative transportation impacts resulting from the implementation of the proposed project and recommended mitigation measures.

The General Plan Update Plan EIR included the proposed project in its consideration of cumulative impacts. It concluded that the cumulative impacts to traffic, together with regional improvements to the State Route (SR) 29 corridor when funding becomes available, would reduce congestion in the city, although the impact would not be reduced to a less-than-significant level. Therefore,

traffic impacts are considered cumulatively considerable and significant and unavoidable.

VII. REPORT PREPARATION AND REFERENCES

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