Southwest Santa Rosa Area Plan
FINAL ENVIRONMENTAL IMPACT REPORT
(REVISED DRAFT EIR)

City of Santa Rosa
Department of Community Development
SOUTHWEST SANTA ROSA AREA PLAN
FINAL
ENVIRONMENTAL IMPACT REPORT
(REVISED DRAFT EIR)

SCH #92083076

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Department of Community Development

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INTRODUCTION

PURPOSE OF EIR

This Master Environmental Impact Report (EIR) for the Southwest Santa Rosa Area Plan has been prepared in conformance with the provisions of the California Environmental Quality Act (CEQA) Guidelines as amended. The purpose of this EIR is to provide the City of Santa Rosa, public agencies and the public in general with detailed information about the environmental effect of implementing the Draft Southwest Santa Rosa Area Plan, infrastructure and related projects, and to examine and institute methods of mitigating any adverse environmental impacts should the Plan be approved for implementation, and to consider alternatives to the Draft Area Plan as proposed. CEQA provides that public agencies should not approve projects as proposed (in this case the Draft Area Plan, infrastructure and related projects), until all feasible means available have been employed to substantially lessen the significant effects of such projects. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time.

The EIR will be considered at public hearings by officials of the City of Santa Rosa, including the Planning Commission and City Council, prior to any decisions being made on modifying and/or adopting the Draft Southwest Santa Rosa Area Plan. The EIR specifically addresses the Draft Area Plan, infrastructure projects within the Plan and proposed residential/commercial projects in the form submitted for EIR preparation. Certification of the Final EIR by the City of Santa Rosa as complete and adequate in conformance with CEQA does not grant any approvals to the Draft Area Plan, related infrastructure and projects. The merits of the Draft Area Plan, infrastructure and related projects will be considered separately by the Planning Commission and City Council after certification of the EIR.

The Draft Area Plan is available for public inspection and review at the City of Santa Rosa Department of Community Development, City Hall, 100 Santa Rosa Avenue, Santa Rosa, California 95402.
Note: This EIR (Revised Draft EIR) contains several revisions found necessary through preparation of Responses to Comments addressing the Draft EIR (see Final EIR, Comments and Responses). The revisions (added material or changes in wording) are identified herein through gray shading overlapping with the revisions.

EIR SCOPING

In August of 1992, the City of Santa Rosa Department of Community Development issued a Notice of Preparation that an EIR would be prepared for the Southwest Santa Rosa Area Plan. The Notice was submitted to local agencies (i.e., Sonoma County Water Agency, Sonoma County Public Health Department), and the State Office of Planning and Research. The State Office of Planning and Research in turn forwarded the Notice on to Responsible State agencies including the California Department of Fish and Game, Department of Transportation, Air Resources Board and other State Agencies. The purpose of the Notice was to allow these and other public agencies to transmit their concerns and comments on the scope and content of the EIR, focusing on specific information related to their own statutory responsibility early in the environmental review process. Refer to Appendix A, Summary of Scoping by Major Topic Area, which summarizes the comments received from various agencies and individuals, and where answers to the comments may be found in the EIR.

In response to the Notice, letters of comment were received from the following agencies:

Federal Agencies
U.S. Department of the Interior,
Fish and Wildlife Service

State Agencies
California Environmental Protection Agency
California Department of Transportation
California Archaeological Inventory

County of Sonoma
Sonoma County Water Agency
Sonoma County Public Health Department
Sonoma County Department of Planning
Sonoma County Department of Public Works
Sonoma Local Agency Formation Commission
City of Santa Rosa
Public Works Department

Individuals/Groups
Betty L. Guggolz,  
California Native Plant Society  
Southwest Area Citizens Group  
Donna Strom  
Sonoma County Wetlands Watch  
Geoff Johnson  
Carolyn Dixon  
Wendy and John Lansing

In addition, a public scoping meeting was held at the Bellevue Elementary School Auditorium in Santa Rosa on the evening of March 2, 1993. The meeting was noticed by the City of Santa Rosa in advance of the scoping meeting. The purpose of the scoping meeting was to allow organizations, individuals and the public at large to express the environmental concerns that should be addressed in the EIR.

In response to letters received as a result of the Notice of Preparation and March 2 scoping meeting, all correspondence was passed on to the EIR preparers for their consideration in preparing the Draft EIR for the Southwest Santa Rosa Area Plan. Also, in response to the Notice of Preparation, scoping session and letters of comment received from agencies and the public, it was determined that a full EIR would be prepared for the Draft Area Plan. Major EIR issues were determined to be the following:

- Relationship to Plans;
- Land Use;
- Employment, Housing and Population;
- Traffic and Circulation;
- Visual Quality and Community Character;
- Utilities;
- Public Services;
- Hazardous Materials;
- Cultural Resources;
- Soils, Geology and Seismicity;
- Hydrology and Water Quality;
- Vegetation and Wildlife;
- Air Quality;
- Noise; and
- Growth Inducements.
The environmental effects of implementing the Southwest Santa Rosa Area Plan, together with infrastructure and proposed individual projects are analyzed under each major topic as listed above. The CEQA Guidelines define the effects of a project as changes from the environmental setting (existing conditions), that are attributable to the project. Short-term construction impacts as well as the long-term operational impacts are described as appropriate for each topic.

ORGANIZATION OF EIR

Because of the complex nature of the Southwest Santa Rosa Area Plan and individually proposed projects, this EIR presents the environmental setting and findings of impacts and mitigation measures in a specialized format.

These features are briefly described below for purposes of clarification in using this EIR, and are explained in more detail in Section 2, Project Description.

DRAFT SOUTHWEST AREA PLAN

The Area Plan itself is treated as the "project". The Area Plan is addressed in a general way, similar to the way an EIR would address a City's General Plan. This is because the Area Plan is not specific to any single project that would be proposed for construction by an individual or developer (for example a housing development or shopping center). This is consistent with CEQA Guidelines Section 15146 which provides that the degree of specificity required in an EIR should correspond to the degree of specificity involved in the underlying activity which is described in the EIR.3

In addition, the EIR analysis of the Area Plan addresses cumulative development. This means that buildout of the Southwest Area is addressed in the assessment of environmental impacts, rather than addressing only a portion of the Area Plan. This EIR that addresses the Area Plan is developed as a "Program" EIR under CEQA. A "Program" EIR is an EIR which is prepared on a series of actions that can be characterized as one large project that are geographically related.

There are basic advantages to the Program EIR level of analysis. For example, a Program EIR provides for a more exhaustive consideration of the effects and alternatives than would be practical for an EIR on an individual action (such as an individual project comprising only a part of Area Plan development). In addition, a Program EIR ensures the consideration of cumulative impacts that
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otherwise could be overlooked on a case-by-case basis, avoids duplicative reconsideration of basic policy issues, and allows the Lead Agency under CEQA (the City of Santa Rosa) to consider broad policy alternatives and area wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts. Subsequent activities in the program may be examined in the light of the Program EIR to determine whether additional environmental documents must be prepared.

The EIR also addresses construction of the Bellevue Avenue/U.S. 101 interchange project and the installation of new utilities (water, sewer, storm drainage), which would be required for buildout of the Area Plan and the construction of 35 individual project proposals (described below). Thus, the Bellevue Avenue/U.S. 101 interchange project and infrastructure improvements are considered as part of the Draft Area Plan.

PROPOSED PROJECTS

Thirty-five project proposals have been submitted to the City of Santa Rosa, Department of Community Development, for review. These projects are all included within the geographic limits of the Draft Area Plan and are addressed in this EIR on an individual, project-specific basis. The analysis of environmental impacts and mitigation measures for the proposed projects is more detailed than for the Area Plan because the proposed projects are more detailed in their description.

The analysis addresses each project based on the material contained in each application package (project plans, drawings and text description), at a level of detail proportional to the level of project detail provided in each application. Adoption of the Southwest Area Plan by the Santa Rosa City Council does not mean automatic approval of the individual projects under the Area Plan (see Item 2.4, Required Approvals, under Section 2, Project Description for further elaboration).

Thus, each technical portion of Section 3 of the EIR (i.e., Land Use, Visual Quality, Air Quality), entitled Setting Impacts and Mitigation Measures is organized under the following major headings unless an exception is warranted:

• SOUTHWEST AREA PLAN;
• PROPOSED PROJECTS.
STANDARD FOR ADEQUACY

Section 15151 of the CEQA Guidelines specifies that an EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Where a particular project effect is too speculative for evaluation, discussion of the effect is ended. What is desired is completeness and a good faith effort at full disclosure.

SIGNIFICANT EFFECT ON THE ENVIRONMENT

In accordance with Section 15143 of the CEQA Guidelines, this EIR focuses on the significant effects on the environment. Each major topic (i.e., Hydrology, Vegetation and Wildlife), provides criteria for evaluating whether an environmental impact is significant or insignificant. As explained in Section 15002 (g) of the CEQA Guidelines, a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.

The definition of impact using terms such as "beneficial" or "insignificant" is not defined in the CEQA Guidelines, but for purposes of this EIR a beneficial environmental impact is one in which an environmental condition is enhanced or improved, while an insignificant environmental impact is one in which there is no long or short-term significant adverse change in environmental conditions.

Determining that a mitigation measure reduces an impact's significant level to a level of insignificance rests with understanding the criteria for determining a significant impact. If the criteria for determining a significant impact is not met, the impact is considered insignificant. For one or more significant unavoidable impacts that cannot be substantially mitigated, the Lead Agency (City of Santa Rosa), under CEQA must prepare a Statement of Overriding Considerations in which the Lead Agency sets forth its views in writing on the ultimate balancing of the merits of approving a project despite the environmental impacts which may result from project implementation. This process requires consideration of the decision maker (the Lead Agency), to balance the benefits of a proposed project against its potential unavoidable environmental impacts in determining whether to approve a project. The Statement is preserved in the record of project approval (if a project is
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approved), and is prepared after the Final EIR has been completed and certified as complete and adequate.

In the discussion of environmental impacts and mitigation measures in this EIR, a code is used to convey information regarding the significance of impacts before and after mitigation. The codes and their meanings are as follows:

(S) = Significant adverse impact
(PS) = Potentially Significant adverse impact
(B) = Beneficial impact
(I) = Insignificant impact

In Section 3, Environmental Setting, Impacts and Mitigation Measures, the impacts for each environmental topic are numbered, with one of the above codes following the discussion of impact. In addition, each mitigation measure for an environmental impact is similarly numbered with one of the above codes following the discussion of a mitigation measure. Any mitigation measure which is proposed by a project sponsor is so noted. Otherwise, the stated mitigation measure is as recommended by the preparers of the EIR.

MITIGATION MONITORING AND REPORTING

Recent legislation amends the California Environmental Quality Act (CEQA) by requiring public agencies to adopt mitigation monitoring and reporting programs, for changes to a project to mitigate or avoid significant effects on the environment.

AB 3180 requires that a monitoring and reporting program be adopted "When making findings required by subdivision (a) of Section 21081 (Public Resources Code), or when adopting a (mitigated) Negative Declaration ----." The monitoring and reporting program need not be a component of the EIR. The program is part of the project approval process, not necessarily part of the impact analysis process.

A Draft Mitigation Monitoring and Reporting Program has been prepared for public review. The mitigation monitoring and reporting program is intended to accomplish the following:
Introduction

- Identify each mitigation measure for a significant environmental impact.
- Specify the monitoring action(s) required to implement each mitigation measure.
- Indicate the responsible party or agency to conduct the monitoring and reporting program.
- Specify the timing of implementing mitigation.
- Provide a schedule for monitoring actions.
- Indicate sanctions to be imposed for noncompliance with required mitigation measures.

1. CEQA, California Environmental Quality Act, Statutes and Guidelines, June, 1992, published by the Governor’s Office of Planning and Research, Office of Permit Assistance. Although the CEQA Guidelines define different kinds of EIRs, such as a Subsequent EIR or Supplemental EIR, no definition is given for a Master EIR. However, this document is termed a Master EIR because the EIR is contemporaneous and consistent with the Santa Rosa General Plan and Draft Southwest Area Plan, and addresses the proposed projects submitted for review by the City of Santa Rosa under the Area Plan. In addition, this EIR addresses a series of projects proposed for development within the Southwest Area Plan. Subsequent project-specific environmental review for parcels within the Southwest Area Plan for which there is no current proposal would focus on ensuring that a project is consistent with the findings of this Master EIR.

AB 1888, which became effective January 1, 1994, establishes an optional process allowing agencies to decide to prepare a Master EIR for the adoption of plans, phased or multiple approval projects, development agreement projects and rules or regulations to be carried out in subsequent projects. AB 1888 provides that Master EIRs contain the same contents as regular EIRs, provide sufficient information about the kind and type of followup projects to be covered by the Master EIR, the anticipated location of such projects and a capital outlay program or other schedule governing submission and approval of subsequent projects.

AB 1888 also provides that, for processes for followup approval of listed projects, the Lead Agency must use an initial study to determine if the project was within the Master EIR’s scope and presents any new significant impacts. If the project is within the Master EIR and there are no new impacts, the agency may simply adopt a finding to that effect as long as the agency provides public notice of its determination. If the project is within the Master EIR and there are new impacts that can be mitigated, the agency must prepare a mitigated Negative Declaration as a followup CEQA document. For impacts that cannot be mitigated, the Lead Agency must prepare an EIR or focused EIR before approving the followup project.

If the project is not listed, the process is similar to the existing standards and processes governing subsequent EIRs where there are changes to a project or significant new information.

It should also be noted that concurrent with preparation of the Southwest Area Plan EIR, an EIR was prepared for the Southeast Santa Rosa Area Plan and released for public review on July 26,
1993. The incremental environmental effects of the Southeast Area Plan, in addition to cumulative development impacts, are examined in this Southwest Area Plan EIR.


3. An EIR on a construction project may be more detailed on the specific effects of the project than an EIR on the adoption of a General Plan or zoning ordinance because the effects of construction can be predicted with greater accuracy.
1. SUMMARY

1.1 BACKGROUND AND PROJECT ORIGINATION

SOUTHWEST AREA PLAN

The preparation of a detailed plan for Southwest Santa Rosa is required by the City's General Plan. Completing the Area Plan will implement General Plan Policy LUR-2b which directs the Department of Community Development to "Prepare area plans for southwest and southeast Santa Rosa, using this General Plan as a guide, to comprehensively address issues unique to each area and refine the land use plan for each area -----

Preparation of the current Draft Area Plan by the City of Santa Rosa has involved a two-phased work program.

Phase I

From October 1991 to August 1992, Phase I activities included reviewing existing data for the Southwest Area, including current General Plan policies for the Southwest area.

Next, draft policies and neighborhood concepts for the Southwest Area were prepared, including the identification of area-wide issues. City staff of the Department of Community Development then prepared alternative sketch plans for the Southwest Area. The alternative sketch plans were then reviewed by a Citizens Committee, City Planning Commission and City Council and a Selected Area Plan was prepared based on deliberations by these bodies.

Phase II

Phase II is continuing at this time. This EIR is a portion of Phase II work activities. Phase II Area Plan activities have included the preparation of necessary infrastructure plans, inclusive of utilities and public services, and the development of phasing programs and financing measures to fund the
infrastructure plans. In addition, the City has accepted 35 specific project proposals to be included within the Southwest Area Plan EIR.

PROPOSED PROJECTS

As noted above, subsequent to preparation of the Southwest Area Plan, 35 individual residential/commercial project proposals located within the Southwest Area Plan study area have been submitted to the City of Santa Rosa for consideration.

1.2 SOUTHWEST AREA PLAN LOCATION, COMPONENTS AND SCHEDULING

LOCATION

The Southwest Area Plan encompasses approximately 3,800 acres in the southwest portion of the City of Santa Rosa in Sonoma County. The Southwest Area Plan study area is bounded by Highway 12 on the north, U.S. Highway 101 on the east and the City's Urban Boundary on the south and west.

At buildout, and as envisioned in the Southwest Area Plan, the Plan area would contain 14,229 residential units housing a population of approximately 38,320 individuals. There would be about 7,937,400 gross square feet of commercial space (retail, industrial, R&D, office space), 555,000 gross square feet of institutional space (schools, fire station, post office), about 148 acres of developed park land and approximately 150 acres of designated open space. This compares to an existing count of 4,616 residential units housing a population of approximately 14,122 individuals, 4,629,400 gross square feet of commercial space, 249,520 gross square feet of institutional space, 25 acres of developed park land and 14 acres of designated open space. Currently vacant land amounts to 1,424 acres.

COMPONENTS

Draft Southwest Area Plan

For the most part, as a long-range development program, the Southwest Area Plan reflects the Santa Rosa General Plan land use diagram and General Plan development policies relevant to the Southwest area. In preparing the Southwest Area Plan, some of the basic concepts of the General Plan which were considered included the number of dwelling units projected for the Southwest area,
the type and amount of commercial uses to be developed, the size and location of new parks, and various policies relating to the protection of wetlands and creeks.

The policies of the Southwest Area Plan should be considered as being over and above, and not necessarily replacements for, General Plan policies. The land use classifications used in the Area Plan are generally the same as those used in the City-wide General Plan. Adoption of the Area Plan, as a General Plan Amendment, will clarify the arrangement of land uses and eliminate any land use conflicts between the two plans.

Infrastructure

The Area Plan describes the basic area-wide infrastructure improvements required, and provides a phasing plan which relates the development of specific portions of the Plan area to certain infrastructure improvements. Mechanisms for infrastructure financing are discussed in separate documents prepared by the City of Santa Rosa.

New infrastructure will be provided by either developers as development occurs, or by the City, County of Sonoma and local utility companies (i.e., Pacific Bell, P.G.&E, Cable), and State agencies (i.e., Caltrans). Many infrastructure projects will be combined as joint efforts of local government in conjunction with State and/or Federal Programs. Backbone, or major infrastructure projects would be provided by government entities or utility companies and include the following:

- Major roads and circulation improvements of arterial streets, highway improvements, highway interchanges and ramps/overpasses.
- Water mains 12 inches in diameter or larger.
- Major storm drainage improvements of channels and conduits:
- Sanitary sewer trunk lines 15 inches in diameter or larger.
- Electricity, natural gas and communications systems.

SCHEDULING

Development of the Southwest area will take place over a period of years. It is expected that future economic conditions will determine the rate of Plan buildout. However, because the Santa Rosa
General Plan looks forward to the year 2010, the horizon year of 2010 is used in the analysis of technical issues in this EIR (i.e., Traffic and Circulation, Utilities, Public Services).

1.3 PROPOSED PROJECTS

The following briefly describes the 35 development projects proposed by individual project sponsors within the Southwest Area Plan boundary.

**Project #1: Dutton Place**

**Location:** 3.38 acre site at 2334 Dutton Ave. The site is located on the east side of Dutton Ave., just north of Hearn Ave. Currently on-site is one single family dwelling.

**Project Description:** The project proposes to develop 24 single-family housing units at a density of 7.16 units per acre.

**Project #2: Westmeadow Park**

**Location:** 4.5 acre site located at 1815 Burbank Ave. The project site is on the west side of Burbank Ave., midway between Sebastopol Rd. and Hearn Ave. Currently the site consists of 2 single family residences, a barn, and pasture.

**Project Description:** The project proposes to build 36 single-family homes on 4.5 acres, with a density of 8 units per acre.

**Project #3: Western Gardens**

**Location:** 3.94 acre site located at 1320 Hearn Ave. The project is located on the south side of Hearn Ave. at the end of West Ave. Currently the site contains a single-family dwelling.

**Project Description:** The proposed development consists of 25 multi-family units and 13 single-family lots.

**Project #4: Fouche Village**

**Location:** 12.2 acre site at 2290 Dutton Ave. The site is located on the east side of Dutton Ave., north of Hearn Ave. To the immediate east of the site is the NWP rail line, and the Colgan Creek flood control channel. The site has historically been used as an auto wrecking yard, which is being phased out.

**Project Description:** The project proposes to develop 79 multi-unit dwellings (duets, and townhomes), on 9.95 of the project site, at a density of 7.94 units per acre. The project sponsor is seeking to sell to the City the remaining 2.25 acres for inclusion in a proposed City park.
1. Summary

Project #5: Southcreek Village

Location: 19.3 acres at 1360-1400 Burbank Ave. The site is located on the east side of Burbank Ave., south of Hughes Ave. Several residences, an orchard, and pasture currently occupy the site.

Project Description: The proposed project consists of 124 single-family detached dwellings, an estimated 4,300 sf of commercial development (on .3 acres), and 2.93 acres of open space.

Project #6: Baker Subdivision

Location: 5.75 acres at 2875 S. Dutton Ave. The site is on the west side of S. Dutton Ave. between Hearn Ave. and Bellevue Ave. A PG&E easement runs along western edge of the property. Existing uses are residential and horse pasture.

Project Description: Site to be divided into 41 residential lots, at 7 lots per acre density.

Project #7: Burbank Ave. Condominiums

Location: 5.0 acres at 1780 Burbank Ave. The site is located approximately halfway between Hearn and Hughes Avenues on the east side of Burbank Avenue. Presently the site contains a residence and three large barns housing horses that are trained at the site.

Project Description: The project proposes to develop 77 condominium units at a density of approximately 17 units per acre.

Project #8: Ash Drive

Location: 2.36 acres at 2180 Ash Drive. The site is at the existing southerly terminus of Ash Dr., south of Yuba Dr., west of Stony Point Rd. Currently the site is vacant or pasture land.

Project Description: The proposed project seeks to develop 16 single-family detached homes on 2.36 acres.

Project #9: Courtside Village

Location: 68.5 acres at 3950 Sebastopol Rd. The site straddles Sebastopol Road, between the Santa Rosa Corporate Center and Wright Road. The site is bounded on the North by Highway 12, on the South by Golden Gate Avenue and on the West by McPhails Building Materials. Currently, the site includes homes, several livestock pastures and corrals, a church site, the Blue Star Gas operation, the Countryside Racquet club, and a few open or vacant lots.

Project Description: The project consists of a total of 518 units, 307 townhouses, 161 single family homes, and 50 condominiums. The northern section of the proposed project consist of 263 homes, 60% of which are townhouses, surrounding a large tennis/swimming/recreation/pre-school/day care center. The southern section of the proposed project consists of 205 homes, 70% of which are townhouses, surrounding a 20,000 sf retail center with restaurants, shops, and a central Town Plaza. 50 condominiums would be located above the restaurants and shops of the retail center. The proposed project also include 2.5 acres of "Village Green" turf area.
1. Summary

Project #10: Martin Homeless Housing

Location: The 5.2 acre site is located 4025 Sebastopol Road. The site lies between Sebastopol Road and Highway 12 near the Wright Road intersection. A 2,400 sf vacant one-story building occupies the front portion of the site.

Project Description: The project proposal is to develop 170 multi-family homeless housing units and 35,000 sf of office/warehouse space.

Project #11: Northpoint Village

Location: 61.2 acres at 2567 Stony Point Rd. The site is located at the northwest corner of the intersection of Hearn Ave. and Stony Point Rd.

Project Description: The proposed project would develop 216 single-family and Duplex units, 97 Row Houses, 7 Shop Front housing units, and 120 Multi-Family units, for a total of 440 housing units on 34 acres. The proposed project also contains 5,000 sf of commercial land area, 3.24 acres of park land, and 9.01 acres of open space.

Project #12: Solarium 2010

Location: 2/3 of an acre located at 712-718 Brittain Lane. The proposed project is located 600 feet North of Sebastopol Rd. Currently on-site are 5 housing units, and a recycling center/storage building.

Project Description: The proposed project would develop 5 single-family housing units and 2,000 sf of commercial space, with some live/work space available.

Project #13: Mountainview Homes

Location: 1.17 acres at 2722 Stony Point Rd. The site is on the east side of Stony Point Rd., approx. 1000' south of Hearn Ave. Currently there are two rental units on the front portion of the site.

Project Description: The project proposes to develop 6 single-family detached lots, and two lots with triplexes, for a total of 12 units.

Project #14: Lands of Kersch

Location: 7 acres at 2872 Stony Point Rd.

Project Description: The project proposes to develop 55 single-family housing units, at a density of approximately 8 units per acre.

Project #15: Giffen Estates

Location: 5.6 acres at 2200 Giffen Ave. The site is currently unoccupied but contains some sheds.
1. Summary

Project Description: The project proposes to develop 61 single-family residential units.

Project #16: Lands of Wismer
Location: 20 acres at 2830 Stony Point Rd. The project site is located on the east side of Stony Point Rd. at the intersection of Yuba Dr. Currently the site contains one single family dwelling and pasture land.

Project Description: The project proposes to develop a total of 176 residential housing units at the site, 144 single-family units and 32 townhouses.

Project #17: Pero Apartments
Location: 1.3 acres at 2150 Giffen Ave. The site is located at the southwest corner of Giffen Ave. and Stony Point Rd.

Project Description: The project proposes to develop 28 apartment units at the maximum density of 22.5 units per acre. Currently the property is vacant.

Project #18: Burbank Housing (2450 Old Stony Point Rd.)
Location: 6.0 acres at 2450 Old Stony point Rd. The site lies on the eastern side of Old Stony Point Rd. north of the intersection with Hearn Ave. The site presently contains a single family residence, a vacant mobile home, various out-buildings, and two Little League baseball playing fields.

Project Description: The project proposes to develop a 110-unit townhouse development, and a separate 1,800 sf daycare center.

Project #19 (A and B): Skidmore Acres
Location: 7 acres at 2960 Stony Point Rd. The site is located directly east of the intersection of Ludwig and Stony Point Rd. Currently the property contains a mobile home, outbuildings and barns.

Project Description: The project proposes to subdivide the site into 31 single-family housing lots. The project sponsor has proposed two potential circulation/site plans, which will be referred to as #19-A and #19-B.

Project #20: South Dutton (Weiss/Grossman)
Location: 10 acres at 3000 and 3012 South Dutton Ave. The site is located at the northeast corner of South Dutton Ave and Bellevue Ave. A single family home is currently located at the site.

Project Description: The project proposes to develop a total of 120 housing units, 60 single-family homes and 60 condominiums.
Project Description: The project proposes to develop a total of 120 housing units, 60 single-family homes and 60 condominiums.

Project #21: Orchard Park
Location: 10 acres located at 3365 Moorland Avenue. The site is located at the northwest corner of the intersection of West Robles Ave., and Moorland Ave. Currently the project site is the location of a working orchard/farm with a farm house and associated outbuildings.

Project Description: The project proposes to develop 74 single family units and a 1.7 acre park area.

Project #22 (A & B): Springfield
Location: 75.8 acres in the vicinity of 1481 Ludwig Ave. The proposed project site consists of 17 parcels and is generally bounded by Ludwig Ave. to the south, Pyle Ave. to the north, South Wright Rd. to the west, the Air Center and Madera Ave. to the east.

Project Description: The project seeks to develop approximately either 406 (22-A) or 417 (22-B) single-family dwellings, and 25,000 sf of commercial space. A land use proposal specific to a 9.8 acre portion of the project site (APN# 035-201-06) has been provided. This proposal contains two alternatives for this portion of the site, and the total project will be referred to as "22-A" and "22-B" to reflect these two alternatives.

Project #23: Young's Dutton Place
Location: 5.6 acres at 2853 South Dutton Place. The project site is on the west side of South Dutton Rd. approximately halfway between Hearn Ave. and Bellevue Ave.

Project Description: The project proposes to develop 34 single-family homes at 6.09 units per acre. Presently the site is undeveloped.

Project #24: Lara Subdivision
Location: 4.55 acres at 1119 Burbank Ave. The project site is located on the west side of Burbank Ave. directly opposite Hughes Ave., south of Rose Ave. Currently residential units are on-site.

Project Description: The proposed project seeks to subdivide the 4.55 acre lot into 22 single-family housing lots.

Project #25: Patrick Brennan Acres
Location: 8.7 acres at 1884 & 1830 Stony Point Rd. The site is located directly east of the intersection of Giffen and Stony Point Rd. Currently on-site is a mobile home and various outbuildings.

Project Description: The project proposal is to develop 47 single-family housing units at the site.
Projects #26 A and B (#26 & #32): California Stony Point/Bates Investment

Location: The project site totals 18.14 acres, 13.14 acres at 2701 Stony Point Rd. and 5 acres at 2727 Stony Point Rd. The project site is located on the west side of Stony Point Rd. south of the Hearn Ave. intersection, north of Yuba Dr. Currently the site is vacant.

Project Description: The project sponsor has proposed two alternatives for this project which will be referred to as Alternatives 26-A and 26-B. Project 26-A proposes to develop 172 residential housing units, 85 single-family units, 12 townhomes, and 75 multi-family units, on 17.2 acres. Alternative 26-A also proposes .9 acres of Park/Open space.

Alternative 26-B proposes to develop 175 residential housing units, 81 single-family units, and 94 multiple family housing units, on 17 acres. This alternative also proposes 1.1 acres of designated Park/Open Space.

Project #27: Lands of Pierre

Location: 17.3 acres at 2944 South Dutton Ave. The project site is on the east side of South Dutton Ave. and is bounded on the east by the Colgan Creek Flood Control Channel. Currently the site contains a developed general industrial area, and the remainder is used for hay production.

Project Description: The project proposes to develop 90 single-family units. Approximately 2.78 acres is proposed to remain in its current use as general industrial.

Project #28: Valena (Village Station)

Location: 4.73 acres at 3675 Sebastopol Rd. The project site is at the northerly extension of Fresno Ave. between Sebastopol Rd and Highway 12. Currently the site contains a single-family structure.

Project Description: The project proposes to develop 37 single-family residential units at 7.82 units per acre.

Project #29: Bellevue Ranch

Location: The proposed project consists of a 17 individual parcels, ranging in size from 1 acre to 19.53 acres, totaling 126.13 acres. The area these parcels are located in is between South Dutton Ave. on the east, Stony point Rd. on the west, and Hearn Ave. on the north. Additional parcels are located on the east side of South Dutton Ave. The project is grouped in 3 specific sites, designated as 29-A, 29-B, and 29-C.

Project Description: The proposed project is roughly projected to consist of 450 single-family units, 150 townhomes, and 100 apartments for a total of 700 +/- units, in addition to the residential development the project proposes two commercial centers with 170,000 sf of commercial development, and 7 acres of park land.
1. Summary

Project #30: Air Center

Location: 316.7 acres located at the vacant Santa Rosa Air Center Property east of S. Wright Road and north of Ludwig Avenue.

Project Description: The proposed project contains a variety of uses including: Approximately 838 single-family and approximately 474 multi-family residential units for a total of 1,312 residential housing units, 6 acres commercial/retail and business services, 27 acres of developed neighborhood and community park sites, a possible 50-acre open space/wetlands preserve, and a 9 acre elementary school site. The remaining land area (approx. 29 acres) would be used for roadways and public infrastructure.

Project #31: Ken Martin Property

Location: 7.4 acres at 2300 Hearn Ave. The site is located south of Hearn Ave., north of Yuba Dr. Currently the property is vacant.

Project Description: The project proposes to develop 48 single and/or multi-family residential housing units at the site. A 1.4 acre park site is also proposed.

Project #32: SEE PROJECT #26

Project #33: Bellevue Interchange

Location: The proposed interchange is located at the existing terminus of Bellevue Ave. on the western side of highway 101, and directly opposite on the east side of highway 101. Some improved commercial and residential property exists at the proposed site, and would have to be removed.

Project Description: Alternative 1: The proposed interchange would provide a four lane overcrossing of highway 101 for Bellevue Ave. North and southbound button-hook ramps would connect to Santa Rosa Ave. on the east side of the freeway, and to Moorland Ave. on the west side. Alternative 2: Bellevue Ave. would only be a four lane overcrossing with no connection to U.S. 101.

Project #34: Southwest Fire Station

Location: .81 acres at 1955 Northpoint Pkwy. The project site is located on the northern side of the Northpoint Pkwy. A single family residence is currently at the site.

Project Description: The proposed project seeks to develop a Fire Station for the Santa Rosa Fire Department. The existing single-family unit would remain.

Project #35: Bellevue Elementary School

Location: 10.7 acres at 2681 South Dutton Ave. The proposed school site is located on the western side of S. Dutton Ave. Currently the site is vacant.
Project Description: The proposed project seeks to develop a 15-classroom elementary school to service students in the Bellevue school district.

1.4 REQUIRED APPROVALS

SOUTHWEST AREA PLAN

Approval and adoption of the Southwest Area Plan by the Santa Rosa City Council will be required prior to the approval and implementation of individual projects to be constructed under the provisions of the Area Plan.

Approvals from the California Department of Fish and Game would be required for any necessary streambed alteration agreements. Additionally, the U.S. Army Corps of Engineers would need to issue a section 404 Permit under the Clean Water Act, and Section 10 Permit under the Rivers and Harbors Acts for any alterations to wetlands.

PROPOSED PROJECTS UNDER THE AREA PLAN

Prior to construction of individual projects for which the City has received applications, the City Council will need to adopt prezoning designations and individual property owners will need to submit annexation applications to the Local Agency Formation Commission (LAFCO) for approval.

The City of Santa Rosa would need to review and approve project Tentative and Final Maps for each project, in order to issue grading and construction permits. Approvals from the California Department of Fish and Game and U.S. Army Corps of Engineers could be required for any proposed disturbance to existing wetlands prior to site grading.

1.5 AREAS OF CONTROVERSY, ISSUES TO BE RESOLVED

AREAS OF CONTROVERSY

Several areas of controversy currently surround the Southwest Area Plan project as proposed. Controversial issues are known to the public through expressions of public opinion that are documented in the media.
Those issues of controversy that are discussed in the EIR are as noted below. The issues of controversy known at this time include:

1) Caltrans' proposals for U.S. 101 freeway interchange improvements in Santa Rosa, and the effect of these proposed improvements to circulation patterns and intersection service levels within Santa Rosa. This subject is discussed in Section 3.1.4, Traffic and Circulation.

2) Timing of the future Caltrans' constructing additional lanes along U.S. 101 between Wilfred Avenue in Rohnert Park and Highway 12 in Santa Rosa. This project is currently listed in the State Transportation Improvement Program (STIP), but funding for the project could be delayed in future years while congestion along U.S. 101 gets progressively worse with area growth. Widening U.S. 101 north of Highway 12 is not in the STIP. In addition, the desirability of designating these lanes for High Occupancy Vehicle (HOV) use along U.S. 101 during peak periods is an issue of controversy. These subjects are discussed in Section 3.1.4, Traffic and Transportation.

3) Potential impacts of constructing in wetland areas. This subject is discussed in Section 3.2.3, Vegetation and Wildlife.

4) The potential to encounter rare and/or endangered plant species in construction areas. This subject is also discussed in Section 3.2.3, Vegetation and Wildlife.

Areas of potential controversy may include possible impacts on cultural resources, impacts on the providers of public services and utilities, pedestrian safety (especially school children), potential air quality and noise impacts, and the potential for growth inducing impacts. These subjects are discussed in the respective technical sections of this EIR.

ISSUES TO BE RESOLVED

A fundamental issue is whether the Area Plan project, individual project proposals and planned infrastructure improvements will be approved by City of Santa Rosa officials for construction. However, this issue is a public policy decision for the Planning Commission and City Council and is not a function of the EIR, which serves to provide information so that decision makers, responsible agencies and the public are fully informed of the environmental consequences of these decisions (see the Introduction to this EIR for additional information regarding environmental review under CEQA).

Intrinsic to any decision being made on the Area Plan project and proposed individual projects is the choice among alternatives studied in this EIR. The choice among alternatives, including the Draft
Area Plan, relates to mitigating the unavoidable significant adverse impacts of the project as proposed.

The alternatives studied include the following:

1. No Area Plan
2. Reduced Development
3. Increased Density
4. Alternative Area Plans
5. Alternative Circulation Plans
6. Mitigated Project Alternative

Upon completion of the technical analysis of this EIR, other issues remain to be resolved prior to project approvals. These issues include:

- The City's position with respect to the timing of constructing additional traffic lanes along U.S. 101 within Santa Rosa.
- The timing and phasing of infrastructure improvements to allow development to proceed within the Southwest Santa Rosa Area Plan area.

1.6 MAJOR EIR CONCLUSIONS

The following presents the major conclusions and findings of the EIR. This section is organized into four parts as follows:

1. Impacts Determined to be Insignificant

Areas of investigation (issues addressed in the EIR), wherein the Area Plan project and/or proposed individual projects would not generate significant adverse environmental impacts, are listed by subject area. These are areas of study for which no mitigation measures would be required. However, mitigation measures are often recommended in order to conserve or protect environmental resources (i.e., conservation measures to reduce energy consumption or protect wildlife habitat).

2. Significant/Potentially Significant Impacts Determined to be Insignificant with Mitigation Implemented.

Areas of investigation wherein the Area Plan project and/or proposed individual projects would generate significant adverse environmental impacts, but where the
1. Summary

significant impacts could be reduced to insignificant levels with mitigation implemented, are summarized.

3. Unavoidable, Significant Adverse Impacts

Unavoidable significant adverse impacts that would result from implementing the Area Plan project and/or proposed individual projects are summarized.

4. Alternatives

A summary description of each Area Plan project alternative studied is provided.

A Summary Environmental Impact Matrix that summarizes the level of impact significance for the Area Plan and proposed projects by subject category is provided on Figure 1-1.
SOUTHWEST SANTA ROSA AREA PLAN ENVIRONMENTAL IMPACT REPORT
Summary Environmental Impact Matrix

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<th>LAND USE</th>
<th>TRAFFIC / CIRCULATION</th>
<th>VISUAL IMPACT</th>
<th>UTILITIES</th>
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<th>HAZARDOUS MATERIALS</th>
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**LEGEND**
- **●** Significant Unavoidable Impact
- **○** Significant or Potentially Significant Impact Mitigated to Level of Insignificance
- **O** No Identified Impact

1. Includes Infrastructure of Bellevue Interchange, road widening, water, and storm/sanitary sewers.
IMPACTS DETERMINED TO BE INSIGNIFICANT

EMPLOYMENT, HOUSING AND POPULATION

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Increased population within the Plan area.
- Increased employment under the Area Plan.
- Increased housing stock within the Plan area.

TRAFFIC AND CIRCULATION

SOUTHWEST AREA PLAN

- Increased demand for transit trips from the Southwest Area.
- New freeway interchanges at US 101/Bellevue Avenue and Wright-Fulton/Highway 12.
- Increased demand for non-motorized transportation.

PROPOSED PROJECTS

- The traffic impacts from land use proposals #1-3, 6, 8, 12, 13, 17, 19, 23-25, 28, 31, and 34 are individually insignificant.

UTILITIES

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Increased demand in daily water requirements.

PUBLIC SERVICES

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Increased solid waste stream to the Sonoma County Central Landfill.

CULTURAL RESOURCES

PROPOSED PROJECTS

- Archaeological Resources

Construction on Project Sites #1, #2, #4-#13, #15, #18-#23, #25, #28, #29, #31, #33 and #34.
1. Summary

- Historic Properties

  Construction on Project Sites #1-#4, #7, #8, #10-#15, #19, #21-#28, #30, #31, #33 and #34.

VEGETATION AND WILDLIFE

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Construction on Project Sites #1, #4, #7, #12, #13, #15, #17, #18, #27 and #33.

AIR QUALITY

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Cumulative CO concentrations at intersections.
SIGNIFICANT IMPACTS DETERMINED TO BE INSIGNIFICANT WITH MITIGATION IMPLEMENTED

TRAFFIC AND CIRCULATION

SOUTHWEST AREA PLAN

- With the mitigation measures noted in this EIR, all of the arterial corridor service levels can operate within the City's standard of "D" or better. Three intersections would operate at level of service (LOS) "E." None would operate at level of service "F," however.

Mitigation
Intersection improvements (added turning and/or through lanes) would be required at these intersections:

- Northpoint Parkway/Stony Point Road
- Sebastopol Road/Stony Point Road
- Hearn Avenue/Stony Point Road
- Bellevue Avenue/Stony Point Road
- Dutton Avenue/Sebastopol Road
- Hearn Avenue/Dutton Avenue
- Dutton Avenue/Bellevue Avenue
- Hearn Avenue/Corby Avenue
- Todd Road/Stony Point Road
- Wright Road/Sebastopol Road
- Corporate Center Parkway/Sebastopol Road
- Baker Avenue/Corby Avenue

Impact
Several intersections would exceed the traffic volume normally acceptable (because of delay and/or safety) for stop-sign controlled intersections.

Mitigation
Signalize the following intersections:

- Hearn Avenue/Stony Point Road
- Bellevue Avenue/Stony Point Road
- Highway 12/Dutton Avenue ramps (2 signals)
- Hearn Avenue/Dutton Avenue
- Dutton Avenue/Bellevue Avenue
- Todd Road/Stony Point Road
- Wright Road/Sebastopol Road
- Highway 12/Wright-Fulton interchange ramps (2 signals)
- US 101/Bellevue Avenue interchange ramps and overcrossing (3 signals)
- Baker Avenue/Corby Avenue
- Northpoint Parkway/Dutton Avenue
PROPOSED PROJECTS

Impact
The impacts of land development Projects #1-3, #6, #8, #13, #17, #19, #23-25, #28, #31 and #34 would be individually insignificant if the proposed mitigation measures for these projects and surrounding streets are implemented.

Mitigation Measure
See body of EIR for details of the proposed street systems and individual project mitigation measures.

Impact
Many of the projects proposed to date would have significant or potentially significant transportation and traffic impacts because of the number of trips they generate and the final layout of their internal street systems.

Mitigation Measure
Prepare project specific (site) traffic impact studies in accordance with the City’s current guidelines. These studies can assess in greater detail what local improvements (on and off site) are needed to accommodate increased vehicular, pedestrian, and bicycle trip generation.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHWEST AREA PLAN

Impact
Infrastructure construction of new roads, roadway widening, storm sewers, sanitary sewers and water supply, would require earth excavation, materials stockpiling and the use of construction equipment which would appear inconsistent with the setting. Road widenings would be expected to require the removal of existing trees at scattered locations which currently serve as visual amenities in the existing setting.

Mitigation Measure
The stockpiling of sewer and water supply equipment prior to installation should be minimized to the extent practicable. Only materials required for several days of construction should be stockpiled at any given site at one time.

The removal of trees necessary to install infrastructure should be compensated for consistent with the Street Design Standard Policies contained in the Community Design Program Element of the Southwest Area Plan.
PUBLIC SERVICES

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

Police Protection

Impact
At buildout, the Santa Rosa Police Department would need an additional 30 officers, 18 patrol vehicles, additional support personnel, and to expand their current headquarters to maintain the current city-wide service level, and achieve their service goal in the Southwest Area.

Mitigation Measure
The City should agree to fund the additional resources as requested by the Santa Rosa Police Department during annual budget process, over the buildout of the Plan. Timing of these additional resources would be keyed to population growth in the Southeast Area, maintaining the current 1.2 officers per thousand residents service level.

Fire Protection

Impact
Providing adequate fire protection for development of the Southwest Area would require the relocation of existing Station 8 to the designated site on the Northpoint Parkway.

Mitigation Measure
As a condition of Plan approval, the City should agree to provide adequate funds, at the time requested by the Fire Department, for the construction of a new fire station on the site already dedicated for this purpose in the Southwest area. Timing of this action would be as justified by residential and commercial development in the area.

Impact
An additional fire station may be required in the Southwest Area to provide adequate fire protection at buildout. This additional station would require one additional fire engine, and an additional 9 full-time fire department personnel.

Mitigation Measure
As a condition of Plan approval, the City should agree to fund, if required, construction of a new fire station in the Southwest area, and to provide the funding necessary for the new fire department personnel and equipment. An assessment of need would be required from the SRFD a minimum of 5 years prior to request of funds. Timing of this action would be as justified by residential and commercial development in the area.
Schools

Impact
Buildout of the Southwest Area Plan would generate an estimated 3,846 new elementary school students, 469 new junior high school students, and 942 new high school students in the area.

Mitigation Measure
The City Council shall not adopt a legislative act which allows residential development within the boundaries of the Southwest Area Plan unless the City Council first finds (1) that the impact of the development on the elementary school and middle school facilities which will serve the development has been mitigated, or (2) that there is no feasible method to reduce such impact and the benefits of the development outweigh its impact on the affected school facilities.

Parks and Recreation

Impact
Buildout of the Southwest Area Plan at mid-range density would require the development and maintenance of 230 acres of park land or accessible open space.

Mitigation Measure
Prior to issuance of a building permit the City should require that each current or future project sponsor in the Southwest area provide adequate park land dedication in their project proposals or the pay in-lieu Land Dedication Fees, and pay the Park Development Fees.

UTILITIES

SOUTHWEST AREA PLAN

Impact
Development of the Southwest Area Plan would increase wastewater flow to the Laguna Wastewater Treatment Plant by 3.04 mgd (ADWF) at buildout, a 24% increase over the current wastewater flow to the plant, and 66% of the City's projected increase between 1993 and 2010.

Mitigation Measure
Current and future project sponsors would be required to pay wastewater connection fees prior to issuance of occupancy permits.
HAZARDOUS MATERIALS

SOUTHWEST AREA PLAN

Impact
Contractors and construction workers may encounter hazardous materials which may pose risk to their health.

Mitigation Measure
• A Site Safety Plan in contaminated areas would be developed in accordance with OSHA regulations, outlining procedures for worker safety, personnel protective equipment, and handling of materials.
• A site specific investigation prior to start of work in the potential problem areas would need to be conducted in collaboration with the lead regulatory agencies on a case by case basis.
• A plan to manage and handle contaminated soil and groundwater would be developed.

Impact
Development of new housing units would result in an increase in the use and disposal of household hazardous wastes by residents. This would be a potentially significant public health risk impact.

Mitigation Measure
1. Compliance with all applicable laws and regulations for proper handling and disposal of hazardous wastes would be necessary.

2. New development within the Plan area would be included as a participant of Joint Powers Agency for the handling, collection and disposal of hazardous wastes.

PROPOSED PROJECTS

Impact
Removal of existing structures may result in the release of hazardous materials to the environment affecting worker safety.

Mitigation Measure
A Hazardous Waste Manifest which details the hauling of the material from the site and its disposal must be filed, should asbestos materials be discovered prior to disturbance and removal. The contractor and hauler of the demolition material must be registered with CAL/OSHA. Implementation of the applicable regulatory procedures regarding asbestos would be required.
Impact
For Project #18, Burbank Housing, the soils affected by caustic chemical spills can become a strong irritant on direct contact with skin or eyes, or if breathed as dust, creating a public health risk impact.

Mitigation Measure
The pH of the soils at the project site would be adjusted to within the 6 to 8 range.

CULTURAL RESOURCES

SOUTHWEST AREA PLAN

Impact
Five prehistoric archaeological sites and five historic archaeological sites are recorded within the Plan area; also, isolated prehistoric cultural materials have been discovered at seven locations, indicating that additional resources are likely present. These sites could be disturbed by development.

Mitigation Measure
Those portions of the Plan area that have not been subjected to archaeological field investigations should be studied as part of the development plan and environmental review processes. Based on what is already known about the region, it is reasonable to assume that prehistoric cultural deposits can be found anywhere in the Plan area. It is therefore recommended that no part of the Plan area be exempt from comprehensive archaeological study. Avoidance, covering or resource recovery would be mitigation options.

Impact
Approximately 724 properties within the Plan area are known or estimated to have been constructed prior to 1946 which could be disturbed by developments.

Mitigation Measure
Those portions of the Plan area that have not been subject to site-specific cultural resources evaluation should undergo a historic architectural review based on the existing inventories. No part of the Plan area should be exempt from the process of determining if structures meet CEQA criteria as important historic resources.

If development-related impacts to important historic structures are identified, significant impacts could be mitigated by avoidance, relocation or recording.

PROPOSED PROJECTS

Impact
Potential archaeological resources may or are known to exist on Project Sites #3, #14, #16, #24, #26, #27, #30 and #35, which could be disturbed by development.

Mitigation Measure
Development-related impacts to important prehistoric archaeological sites could be mitigated by the following alternatives:
1. Summary

1. Avoidance of archaeological sites through modification of development plans that would allow for the preservation of the resources.

2. Covering or "capping" sites with a protective layer of fill.

3. In circumstances where archaeological deposits cannot be preserved through avoidance or capping, data recovery through excavation would be the recommended plan. The work should be accomplished within the context of a detailed research design and in accordance with current professional standards.

Impact
Potential and known historic property resources exist on Project Sites #5, #6, #9, #16, #18, #20, #29 and #35, which could be destroyed by development.

Mitigation Measure
Development-related impacts to important historic property resources could be mitigated by the following alternatives:

1. Avoidance of historic properties through modification of development plans that would allow for the preservation of the resources at their present locations.

2. Relocation of historic structures to places where they can be preserved.

3. If other mitigation alternatives can not be implemented and historic properties may be damaged or destroyed, it is recommended that an "Historic American Building Survey" be accomplished for the structures. Such a procedure involves the precise recording of the structures through measurements, drawings and photographs.

SOILS, GEOLOGY AND SEISMICITY

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

Impact
Sites in the northeast half of the Plan Area may be subject to the damaging effects of surface rupture along a possible splinter trace of the Rodgers Creek fault during the useful economic life of the Area Plan.

Mitigation Measure
Require the recommendations of site-specific fault trace location and activity level investigations, conducted by a California Certified Engineering Geologist, Registered Geologist or Geotechnical Engineer, to be incorporated in the land use design for portions of projects along the trace of the possible splinter fault that crosses the Plan Area.

Impact
The Plan Area will be subject to potentially damaging seismically induced groundshaking during the useful economic life of the Area Plan.
1. Summary

Mitigation Measure

Incorporate site-specific seismic-restraint criteria in the design of slopes, foundations and structures for projects within the Plan Area.

Impact
Grading, excavation and construction activities have the potential to increase erosion of soil from the sites and subsequent deposition of particles in drainage ways, creeks, or wetlands.

Mitigation Measure
If grading or construction are to occur during the wet season, require an erosion and sediment transport control plan, designed by an erosion control professional, or landscape architect or civil engineer specializing in erosion control, that would meet specified objectives for the grading and construction period of projects proposed for the Southwest Plan Area.

Impact
Use of expansive or weak soils for foundation support without prior treatment could create unstable soil conditions at the construction site.

Mitigation Measure
Require site-specific soil suitability analysis and stabilization procedures, and design criteria for foundations, as recommended by a California-registered soil engineer during the design phase for each site where the existence of unsuitable soil conditions is known or suspected.

Impact
The Bellevue Avenue interchange may be subject to the damaging effects of surface rupture where it crosses a possible splinter trace of the Rodgers Creek fault.

Mitigation Measure
Require site-specific fault trace location and activity level investigations, conducted by a California Certified Engineering Geologist, Registered Geologist or Geotechnical Engineer, to determine if the interchange crosses an active fault trace.

If it is determined that the interchange crosses an active fault trace, require site-specific seismic-resistant features and techniques to be incorporated in the design and construction of the interchange and its supporting structures.

HYDROLOGY AND WATER QUALITY

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

Impact
Development of the Southwest Santa Rosa Area Plan would result in higher surface runoff than currently leaves the area, potentially affecting the capacity handling ability of downstream conduits and creeks.
Mitigation Measure
(a) The Colgan Creek channel west of U.S. 101 would be enlarged and modified if necessary for a length of 2,450 feet so that it can convey the design storm runoff from the Southeast and Southwest Plan Areas.

(b) The Roseland Creek channel, and portions of the Naval Creek channel in the vicinity of the Air Center, would be widened and reconfigured to accommodate the design storm runoff.

(c) Improvements which may be necessary to the natural drainages which cross or are downstream from the Southwest Plan Area shall be undertaken with the approval of the Sonoma County Water Agency and to the design standards specified in the Sonoma County Flood Control Design Manual.

Impact
Development construction activities for infrastructure projects within the Southwest Area Plan could result in short-term increases in erosion.

Mitigation Measure
(a) Construction shall be scheduled for the dry season.

(b) Any projects that result in grading of an area greater 5 acres shall be subject to an National Pollutant Discharge Elimination System permit from the Regional Water Quality Control Board. This permit requires that the applicant develop a Storm Water Pollution Prevention Plan.

(c) A soil erosion and sedimentation control plan shall be submitted to the City of Santa Rosa by the applicant for individual projects proposed under the Southwest Area Plan prior to grading.

(d) Disturbed areas, that have been graded for construction, shall be replanted as soon as feasible after the completion of construction.

Impact
Increased runoff from additional impermeable surfaces within the Southwest Area Plan could lower the quality of stormwater runoff.

Mitigation Measure
Easily cleanable catch-basins, debris screens, and grease separators or similar water quality protection devices should be installed in the channels serving the Plan area. Maintenance of the facilities should be ensured through in-lieu fees paid to the City, or the establishment of homeowner associations.

Impact
Construction within areas of high groundwater and areas of seeps could need dewatering to allow construction and to protect foundations.
Mitigation Measures
Projects proposed within the Southwest Santa Rosa Plan within areas of high groundwater shall submit a geotechnical report which designates specific groundwater conditions and subdrain requirements and incorporates them in the project design.

Impact
Development permitted by the Southwest Area Plan will reduce infiltration in a natural groundwater recharge zone by about 25 percent.

Mitigation Measure
The City shall encourage the use of detention ponds to partially offset the loss of groundwater recharge area within the Plan Area. Such artificial recharge programs shall be coordinated through the Sonoma County Water Agency to ensure a rational, consistent and systematic approach.

VEGETATION AND WILDLIFE

SOUTHWEST AREA PLAN

Impact
Construction of proposed residential and commercial developments within the Southwest Area Plan and the infrastructure of drainage improvements and water supply would result in the loss of an undetermined number of Valley Oaks and an undetermined acreage of regenerating Valley Oaks and Valley Oak Woodland.

Mitigation Measure
Impacts to oaks should be avoided and groups of mature Valley Oaks should be preserved wherever possible. To ensure long-term preservation of oaks within the Southwest Area Plan, areas of natural oak regeneration (north of Roseland Creek and the intersection of West Robles Ave. and Mooreland Ave.) should be protected.

The City of Santa Rosa will ensure that all lost Valley Oak trees (tree for tree) at the ratio of prescribed in the Tree Ordinance.

Impact
Construction of drainage improvements projects (Upper Roseland Channel Improvement and Naval Creek Conduit) and residential and commercial development in the vicinity of Roseland Creek and the drainage swale located south of Highway 12, between North Wright and Fern Roads within the Southwest Area Plan would result in the loss of an undetermined acreage of Valley-Foothill Riparian Woodland.

Mitigation Measure
Impacts to Valley-Foothill Riparian Woodland should be avoided. To ensure long-term preservation of this habitat and the valuable wildlife corridors it provides within the Southwest Area Plan, avoidance, compensation, and enhancement measures would be necessary.
Impact

Construction of residential and commercial projects and infrastructure elements associated with these projects within the Southwest Area Plan could result in loss of known and potential vernal pool, vernal swale and freshwater emergent wetland habitat within the grassland areas of the Southwest Area Plan, along the potential alignments of new roads, water mains, drainage improvements, and roadway crossings at the Colgan Creek Flood Control Channel.

Mitigation Measure

Impacts to wetland resources should be avoided or minimized by site planning of facilities outside of vernal pools, by minimizing or reducing the size and area of proposed facilities and structures, restricting the size and areas of construction sites, and using best management practices.

For wetland impacts that cannot be avoided or minimized, the City of Santa Rosa will require preparation of a mitigation and monitoring plan to conserve, replace and restore wetlands within the Southwest Area Plan.

Impact

Construction of residential and commercial development and infrastructure projects within the Southwest Area Plan area could alter existing hydrological characteristics of vernal pool/swale systems extending west to the Laguna de Santa Rosa and southwest to the Todd Road Vernal Pool Preserve.

Mitigation

Implement the proposed Stormwater Management Plan (SWMP) in conjunction with development of a Stormwater Pollution Prevention Plan (SPPP).

Impact

Grading activities during project construction activities, the development of residential land use, and the establishment of project landscaping in areas near the existing wetlands could inadvertently introduce exotic plants and domestic animals to sensitive wetlands outside of the direct impact area.

Mitigation Measure

To minimize the expansion of exotic plants or animals into wetlands adjacent to proposed residential development, native plant species should be used for reseeding. Landscaping using native plant species near appropriate buffer areas, and control measures for domestic cats should be implemented in accordance with the Conceptual Habitat Management Plan.

Impact

Development and related activities within the Southwest Area Plan could result in the loss of or damage to sensitive communities and/or to threatened and endangered plants and animals and/or their habitat.
Mitigation Measure
Impacts to wetland resources should be avoided or minimized by site planning of facilities outside of vernal pools, by minimizing or reducing the size and area of proposed facilities and structures, restricting the size and areas of construction sites, and using best management practices.

For wetland impacts that cannot be avoided or minimized, the City of Santa Rosa will prepare a mitigation and monitoring plan for City-sponsored infrastructure projects to conserve, replace and restore wetlands within or near the Southwest Plan Area. The City will also insure that a mitigation and monitoring plan be prepared for independently sponsored development projects to conserve, replace and restore wetlands within or near the Southwest Plan Area.

Impact
New development within the Southwest Area Plan area may result in the loss of additional remaining vernal pools until the adoption of the Vernal Pools Master Plan under the Open Space and Conservation Element of Santa Rosa 2010.

Mitigation Measure
Completion of the Master Plan will result in an improved factual base for clear, specific restrictions on development near vernal pools, and will give the City greater legal basis for protecting these unique sensitive resources.

PROPOSED PROJECTS

Impact
Construction of proposed Projects #2, #5, #9, #10, #11, #21, #22, #24, #25, #26, #28, #31, #32 and #35 could result in the loss of an undetermined number of Valley Oaks and an undetermined acreage of regenerating Valley Oaks and Valley Oak Woodland. This would be a significant impact.

Mitigation Measure
Impacts to oaks should be avoided and groups of mature Valley Oaks should be preserved wherever possible. To ensure long-term preservation of oaks within the Southwest Area Plan, areas of natural oak regeneration (north of Roseland Creek and the intersection of West Robles Ave. and Mooreland Ave.) should be protected. The project sponsor will replace all lost Valley Oak trees (tree for tree) at the ratio prescribed in the City's Tree Ordinance.

Impact
Construction of proposed Projects #5, #9, #10 and #28 could result in the loss of an undetermined acreage of Valley-Foothill Riparian Woodland. Loss of Valley-Foothill Woodland habitat would be a significant impact.

Mitigation Measure
Impacts to Valley-Foothill Riparian Woodland should be avoided. To ensure long-term preservation of this habitat and the valuable wildlife corridors it provides within the Southwest Area Plan, avoidance, compensation, and enhancement measures would be necessary.
Impact

Construction of proposed Projects #5, #6, #8, #9, #10, #11, #14, #16, #19, #20, #22, #23, #26, #28, #29(B), #30, #31, #32, #34, and #35 could result in loss or alteration of existing hydrological characteristics of known and potential vernal pool, vernal swale and freshwater emergent wetland habitat within the Southwest Area Plan.

Mitigation Measure

Impacts to wetland resources should be avoided or minimized by: (i) relocation of all site improvements from wetlands subject to the jurisdiction of the US Army Corps of Engineers to portions of the property without such wetlands, (ii) minimizing or reducing the size and area of site improvements with such wetland areas, (iii) restricting the size and areas of construction sites within such wetland areas, or (iv) using best management practices.

For wetland impacts that cannot be avoided or minimized, the City of Santa Rosa will require preparation of a mitigation and monitoring plan to conserve, replace and restore wetlands within or near the Southwest Area Plan.

Impact

Development and activity associated with proposed Projects #5, #6, #8, #9, #10, #11, #14, #16, #22, #26, #28, #30 and #32 could result in the loss of or damage to sensitive communities and/or to threatened and endangered plants and animals and/or their habitat.

Mitigation Measure

Impacts to wetland resources should be avoided or minimized by site planning of facilities outside of vernal pools, by minimizing or reducing the size and area of proposed facilities and structures, restricting the size and areas of construction sites, and using best management practices.

For wetland impacts that cannot be avoided or minimized, the City of Santa Rosa will require preparation of a mitigation and monitoring plan to conserve, replace and restore wetlands within the Southwest Area Plan.

AIR QUALITY

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

Impact

The Southwest Area Plan and Infrastructure development would result in construction and operational toxic air emissions, which would be a public health impact.

Mitigation Measure

The potential air quality impacts from toxic air contaminant emissions from construction equipment and operations would be reduced with compliance with the Bay Area Air Quality Management District air pollution control strategies.
1. Summary

Impact
The Southwest Area Plan and Infrastructure Improvements could result in construction-related emissions which could exceed federal and/or State air quality standards.

Mitigation Measure
Each project proponent is responsible for ensuring that the contractor reduces particulate, ROC, NOx, and CO emissions by complying with the air pollution control strategies developed by the Bay Area AQMD. Each developer should include in construction contracts the requirement that contractors water on a continuous as-needed basis all earth surfaces during clearing, grading, earthmoving, and other site preparation activities.

Impact
The Southwest Area Plan development would result in increased vehicular, home heating, home cooling, and wood burning emissions.

Mitigation Measure
Because Area Plan buildout would remain within ABAG projections for population growth for the City of Santa Rosa between 1990 and 2010, vehicular and combustible emissions impacts as a result of Area Plan growth would not be significant with respect to Bay Area Air Quality Management District criteria.
1. Summary

NOISE

**SOUTHWEST AREA PLAN AND PROPOSED PROJECTS**

**Impact**
Development of the Southwest Area Plan and Infrastructure, or construction of the 35 proposed projects, would cause temporary increases in construction noise during the construction period, potentially disturbing residences, school children and businesses in and near the Plan area.

**Mitigation**
Restrict the hours of construction, maintain construction equipment properly, and locate stationary noise sources away from residents and developed areas.

**Impact**
Development of the Southwest Area Plan and Infrastructure improvements, in conjunction with cumulative traffic, would result in traffic noise impacts on the proposed Area Plan developments.

**Mitigation Measure**
The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southwest Area Plan to reduce year 2010 exterior noise levels on proposed land uses.

**Impact**
Development of the Southwest Area Plan and Infrastructure improvements, in conjunction with cumulative traffic, could result in traffic noise impacts on the existing Area Plan land uses.

**Mitigation Measure**
- Retrofit existing residential land uses with acoustical attenuation materials, or relocate residences, to reduce interior noise levels for the year 2010 to below 45 Ldn.
- Construct sound walls with moveable sound attenuating gates, or berms to reduce exterior noise levels of existing residential land uses for the year 2010 to 60 Ldn or below.
- Construct soundwalls or berms at playgrounds and neighborhood parks to reduce noise levels for the year 2010 to 70 Ldn or below.
- Construct soundwalls or berms at office buildings and commercial areas to reduce noise levels for the year 2010 to 65 Ldn or below.

**Impact**
Future transit use along the Northwestern Pacific Railroad Corridor within the Southwest Plan Area could increase ambient noise along the railroad corridor.
Mitigation Measure
The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southwest Area Plan to reduce year 2010 exterior noise levels on proposed land uses.
UNAVOIDABLE, SIGNIFICANT ADVERSE IMPACTS

LAND USE

SOUTHWEST AREA PLAN

- Implementation of the Area Plan would result in the loss of approximately 848 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

PROPOSED PROJECTS

- Construction of the 35 proposed projects could result in the loss of approximately 406 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. The primary contributors to this loss would be Projects #9, #11, #22, #29 and #30.

TRAFFIC AND CIRCULATION

SOUTHWEST AREA PLAN

The project adds traffic to US 101, which is today congested in this area, especially between 4-6 PM in the northbound direction. The Project includes proposals by Caltrans to add a carpool/transit (High Occupancy Vehicle) lane to US 101 in each direction, as well as auxiliary lanes between freeway ramps. Even so, traffic level of service (LOS) would be LOS "F" in some areas, primarily south of the Hearn interchange. LOS "F" corresponds to "stop and go" traffic conditions, with an average speed of about 8-10 MPH.

The Area Plan project proposes to reduce the amount of traffic generated compared with the City's present General Plan. Congested traffic conditions on US 101 would be a result of the cumulative impacts of new land use development in Santa Rosa, adjacent cities (e.g., Rohnert Park), and unincorporated areas of Sonoma County.

PROPOSED PROJECTS

Land development and increased human activities in the area would increase the number of vehicle trips generated. These added trips would result in increases in delays and slower travel for existing traffic during peak commute times. With future traffic volumes and freeway widening, traffic level of service at non-peak times would improve compared to today's conditions, however.
VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHWEST AREA PLAN

Buildout of the Southwest Area Plan would convert land parcels that are currently semi-rural/rural in character to an urban condition. This development would constitute a significant change in visual conditions.

If constructed as proposed, the proposed Fulton/Wright Road overcrossing and interchange at State Highway 12 would be seen as increased urbanization in an area that currently appears semi-rural in character. The transition from rural to urban conditions to the eastbound Highway 12 motorist would be sudden and abrupt.

PROPOSED PROJECTS

The buildout of Projects #11, #29A and #30 would convert land parcels that are currently semi-rural/rural in character to an urban condition. This development would constitute a significant change in visual conditions within central to south and west portions of the Plan Area.

VEGETATION AND WILDLIFE

SOUTHWEST AREA PLAN

Development within the Southwest Area Plan will result in loss of grassland foraging area for sensitive bird species known to occur within the Southwest Area Plan.

AIR QUALITY

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- The Southwest Area Plan would result in construction-related emissions which could cause short-term temporary local exceedances in federal and/or State air quality standards.

- Southwest Area Plan development would result in vehicular, home heating, home cooling, and wood burning emissions, adversely affecting air quality.

NOISE

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

Development of the Southwest Area Plan and infrastructure improvements, in conjunction with cumulative traffic, could result in increased traffic noise impacts on existing Area Plan land uses.
CUMULATIVE IMPACTS

In addition to the proposed projects within the Southwest Plan Area, the EIR also addresses cumulative development within the Plan Area to the year 2005/2010. This cumulative development includes the proposed projects plus other future projects as would be developed in accordance with the land uses indicated on the Southwest Area Plan map. Listed below are locations in the EIR where cumulative development outside the Plan Area is considered in the evaluation of impacts. This cumulative development includes cumulative development under the Southwest Area Plan plus development outside the Plan Area.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
<th>Reference</th>
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<tr>
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<td>Loss of farmland</td>
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<td>Population, Employment and Housing</td>
<td>Table 3.1.3-1</td>
<td>Population/Employment/Housing Trends</td>
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<tr>
<td></td>
<td>Table 3.1.3-2</td>
<td>Employment</td>
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<td></td>
<td>Table 3.1.3-3</td>
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<td></td>
<td>3.1.3-11/12/13</td>
<td>Population and Employment</td>
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<td>Traffic</td>
<td>3.1.4-17</td>
<td>Trip generation</td>
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<td></td>
<td>3.1.4-24/34</td>
<td>Traffic growth</td>
</tr>
<tr>
<td>Hydrology</td>
<td>3.2.2-13/15/17</td>
<td>Area wide drainage</td>
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<tr>
<td>Vegetation/Wildlife</td>
<td>3.2.3-33/38</td>
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<td>Air Quality</td>
<td>3.2.4-18/23/24</td>
<td>Cumulative emissions</td>
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<td>3.2.5-15/16</td>
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<td>Growth</td>
<td>4-1/2/3/4/5</td>
<td>Secondary growth/growth inducements</td>
</tr>
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</table>
ALTERNATIVES

NO AREA PLAN

The No Area Plan alternative is synonymous with the description of the No Project alternative.

Without the Area Plan, the Southwest quadrant of Santa Rosa would be expected to be built out according the provisions of the current General Plan as it applies to the Plan area.

Under the General Plan, development in Southwest Santa Rosa would be expected to generate the unavoidable significant environmental impacts similar to the Area Plan project as proposed. The significant unavoidable adverse impacts for the Plan area include the loss of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County, loss of foraging habitat, cumulative development impacts increasing congestion on U.S. 101, converting a semi-rural to rural setting to urban development, construction noise (short-term impact), and traffic noise impacting existing land uses. Other significant impacts can be mitigated to levels of insignificance as detailed in the respective technical sections of this EIR.

Under the No Area Plan alternative, individual development proposals that are different from the current project proposals could be presented. Conflicting land uses and/or circulation schemes could arise, which would otherwise not occur under a single coordinated Area Plan proposal for which this EIR is prepared. Development proposals under the General Plan would require independent environmental review on a project-by-project basis by the City of Santa Rosa. Each project would receive environmental review over an extended time period.

Without the Southwest Area Plan, future EIRs dealing only with local environmental impacts, would likely not take into account potential adverse or beneficial long-term, region-wide effects in the Santa Rosa area. Without the Southwest Area Plan, environmental review that complements regional growth management strategies in the Santa Rosa area would not be undertaken, detracting from a certain efficiency that is possible within the planning and development process.

The land use changes proposed in the Area Plan as compared to the General Plan are modest, and in fact, have a net effect of reducing the trip generation from the project. In the table below
(Table 1-1), a minus figure indicates a reduction from the General Plan with the Area Plan; a plus indicates that the Area Plan adds units.

The table shows that approximately 74,500 fewer weekday vehicle trip ends would be generated by the project (the Area Plan), which equates to on the order of 6,000-8,000 fewer PM peak hour trips. The reduction in trips indicates that the Project would result in better, or certainly no worse, level of service impacts to intersections and to arterial corridors in the surrounding area, than the No Project Alternative.

**US 101**

The project includes Caltrans' proposed changes to the ramp configurations on 101, especially the closure of the Baker interchange, and HOV lanes on 101, rather than mixed-flow lanes. The No Project alternative proposes to add regular mixed-flow lanes (not carpool lanes) to US 101, and so generally provides greater capacity along US 101. Therefore, in some areas (primarily south of Hearn Avenue to Todd Road) it provides for better levels of service than the project would. On the other hand, traffic speeds and LOS would probably be better from Hearn to Highway 12 with the Project than the No Project Alternative.

**Highway 12**

LOS is about the same for the two alternatives; both generally provide for LOS "D" or better.

**Stony Point Road**

LOS is comparable between the two plans, with somewhat less delay in the Project than the No Project alternative. Under both alternatives the greatest congestion occurs between Sebastopol Road and Highway 12.

**Sebastopol Road**

Sebastopol Road traffic volumes would be substantially lower under the Project than the No Project alternative, due to reductions in the allowed land uses. Delay would thus be reduced and traffic levels of service improved with the Project.
TABLE 1-1
COMPARISON OF THE 1991 GENERAL PLAN
(NO PROJECT) LAND USES AND TRIP GENERATION
WITH THE AREA PLAN

<table>
<thead>
<tr>
<th>Land Uses</th>
<th>Quantity</th>
<th>Average Week-</th>
<th>Total Daily Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-457 DU</td>
<td>10/DU</td>
<td>-4,570</td>
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<tr>
<td>Multifamily (Attached)</td>
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<td>7/DU</td>
<td>+3,885</td>
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<tr>
<td>Retail &amp; Business Services¹</td>
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<td>50/1,000 s.f.</td>
<td>-29,025</td>
</tr>
<tr>
<td>Office/Business Park/General Industry</td>
<td>-4,212,700 square feet</td>
<td>11.4/1,000 s.f.</td>
<td>-48,025</td>
</tr>
<tr>
<td>Public/Institutional (including schools)</td>
<td>+ 31 acres</td>
<td>100 / acre</td>
<td>+ 3,100</td>
</tr>
<tr>
<td>Parks/recreation</td>
<td>+ 18 acres</td>
<td>5 / acre</td>
<td>+ 90</td>
</tr>
<tr>
<td>TOTAL</td>
<td>---</td>
<td>---</td>
<td>-74,545</td>
</tr>
</tbody>
</table>

¹ Commercial has been treated as if all of it were retail (stand alone or strip retail).
1. Summary

Dutton Avenue

Dutton Avenue volumes north of Hearn are slightly lower in the northbound direction, and slightly higher in the southbound direction, than in the No Project alternative (in the afternoon commute hours). Overall level of service should be roughly the same.

Hearn Avenue

Hearn Avenue volumes are substantially reduced in the Project because of reductions in allowable land use, and because the circulation system no longer emphasizes Hearn as a major east/west arterial. Levels of service would thus be improved in the Project.

Bellevue Avenue

Bellevue Avenue traffic volumes and level of service are approximately the same in both the Project and No Project alternative.

Transit and Pedestrian Impacts

With its emphasis on providing for higher density land uses that can support high levels of transit; walking and bicycle circulation systems; good connectivity within and between adjacent developments; and other features to encourage reduce necessary trip making, the Southwest Area Plan should create a small reduction in the number of motorized trips per dwelling units. Evidence from other locations suggests that such measures, when aggressively pursued, can reduce automobile trip generation of households by up to 6-8% per dwelling unit, when compared to typical suburban developments.¹

REduced Development

This alternative would imply the retention or preservation of a greater amount of open space as compared to Selected Area Plan. More open space would allow for more flexibility in planning for the preservation of existing wetlands and/or the creation of wetlands to compensate for wetlands lost to development. However, reduced development would not significantly affect cumulative traffic congestion on U.S. 101 because of regional growth.

With increased open space, there would be more flexibility available in planning to avoid the visual impacts of converting a semi-rural/rural setting to an urban setting. There would still be construction noise, even though this impact would be localized and short-term in duration.
There would also be cumulative air quality emissions resulting from traffic and development, and there would be increased traffic noise adversely impacting existing land uses. There would be a reduced demand on existing utilities and public services. The mitigation of sites containing hazardous materials would still be required prior to construction, and mitigation regarding site soils and seismic conditions would be required, as would be necessary under the Selected Area Plan. The significant impacts that can be mitigated to levels of insignificance under the Selected Area Plan could also be mitigated to levels of insignificance under the Reduced Development Alternative.

This alternative would not likely be implemented because the Selected Area Plan is generally consistent with the provisions of the adopted Santa Rosa General Plan. Appropriate policies for the Area Plan have been developed in detail based on the policies in the General Plan, but are more detailed in scope and content and will take precedence over the General Plan for the Plan Area.

INCREASED DENSITY

This alternative focuses on increasing development density and intensity along the railroad corridor without increasing the overall development density as envisioned in the Selected Area Plan. The total housing units, population, commercial space and parks would remain as projected for the Area Plan at buildout.

The highest densities would generally be closest to transit stops with development becoming less dense at locations away from the railroad corridor. Residential densities could go up to approximately 30 units per acre within 1,500 feet of the railroad corridor. Long-term planning would be required under this development alternative.

Increased density along the railroad corridor would facilitate use of the corridor as a transportation artery by local residents. Accordingly, there would be less reliance upon use of the automobile for commuting with an attendant reduction in local peak hour traffic.
Under this alternative, the amount of open space projected under the Selected Area Plan would be expected to be greater than 150 acres (excludes any open space that would be included within the Residential-Low Density/Open Space land use category).

Under this scenario, there would be greater flexibility in dealing with the issue of wetlands and rare species. For example, with the provision of more open space than currently envisioned under the Selected Area Plan, there would be greater opportunity to locate and configure potential open space areas to preserve existing wetlands and foraging habitat, as well as providing additional area to create new wetlands as compensation for wetlands displaced by development.

The significant and unavoidable impacts under this alternative would be expected to be similar to the significant and unavoidable impacts identified under the Selected Area Plan. Other impacts with increased density along the railroad corridor could occur that are not specifically identified for the Selected Area Plan. For example, there could be reduced road segment and intersection service levels within the corridor area because of increased traffic during the peak hours to access park-and-ride lots or transit stations. Sewer and storm drain facilities may not be adequate to handle the increased development densities. Without careful planning, there could be land use conflicts arising with residential development in close proximity to industrial development.

Therefore, at this time, from the standpoint of environmental impacts, the Increased Density Alternative would not appear to offer a significant advantage over the Selected Alternative.

ALTERNATIVE AREA PLANS

Three Alternative Sketch Plans and a Preferred Alternative prepared for the Southwest Area responded in different ways to the issues, constraints and opportunities for area planning identified during early portions of Area Plan preparation. Major issues identified by the Area Plan Committee and City Planning staff included those pertaining to land use, protection of existing wetlands, rental vs. for sale housing mix, affordable housing, commercial facilities, park and recreation facilities, circulation, potential air quality and noise impacts, mitigating potential traffic impacts, habitat protection, infrastructure planning and other considerations respecting planning and environmental protection.
The goal for the sketch plans was to respond to these items while considering some basic provisions as set forth in the Santa Rosa General Plan, consistent with the goal of using the General Plan as a guide for development. Each of the Sketch Plans consisted of a somewhat different mix of land uses, development densities and positioning of land use categories with respect to each other.

In general, each of the Sketch Plans maintained an approximate balance of residential housing units and population envisioned by the current General Plan. A full range of residential land use classifications as well as a reduction in the amount of land designated for Business Park development was utilized to maintain the approximate population projections of the General Plan. The General Plan land use diagram was reviewed as a control model.

In evaluating the Alternative Sketch Plans, the Committee and City staff noted that Alternative A seeks only to preserve the most valuable portions of natural resources. For example, it was noted that wetlands not containing rare plants may be replaced in kind through enhancement or the creation of new wetlands if permitted by regulatory agencies.

Alternative B employed a "neo-traditional town plan" concept, which reflected a return to traditional development patterns of towns and villages which focus on pedestrian orientation the provision of public spaces. Alternative C was the most intense of the Sketch Plans with respect to population density.

It was determined that the Preferred Sketch Plan Alternative would create more desirable places to live and work. The circulation concept was judged to address regional and local circulation needs with the goal of minimizing regional traffic impacts on neighborhoods and providing community services such as shopping and recreation, within walking distance of the home. City staff found that a balance between natural resources and development would be achieved by preserving the most valuable areas such as wetlands with rare plants, on-site while allowing the mitigation of remaining wetland areas as may be determined by outside agencies.

Overall, there is not a significant difference in the number of dwelling units or potential population of the Southwest Area at buildout as envisioned under the General Plan or either of the Alternative Sketch Plans, including the Selected Alternative Plan.
Given the roughly equal intensity of development of the Sketch Plans, the significant and unavoidable impacts under either of the Sketch Plans would be expected to be similar (if not equal to or greater than), the significant and unavoidable impacts identified under the Selected Area Plan. From the standpoint of mitigating environmental impacts, neither of the Alternative Sketch Plans would appear to offer a significant advantage over the Selected Alternative.

ALTERNATIVE CIRCULATION PLANS

City Freeway Interchanges Plan

The City's Public Works Department has proposed an alternative plan for the freeway interchanges and mainline improvements along US 101 than are evaluated as part of the Project. The principal differences with the Project are as follows:

- The Project treats the new lanes on the US 101 mainline as HOV (carpool/transit) lanes in both directions during peak hours (probably 7-9 AM and 4-6 PM). The Alternative Circulation Plan would treat these as "mixed flow" lanes open to all traffic at all times.
- The Project assumes closure of the Baker Avenue ramps in both directions, and widening of Corby Avenue from Baker to Hearne to serve traffic diverted from the closed interchange to Hearne. The Alternative Circulation Plan assumes these ramps remain open.
- The Project modifies the Hearne Avenue ramps in the southbound direction by moving the existing ramps several hundred feet north of the existing bridge. The Alternative Circulation Plan leaves the southbound ramps in the existing location but modifies the city streets nearby.

Both the Project and Alternative Circulation Plan are essentially the same when it comes to modifications of the Hearne Avenue (Yolanda) northbound ramps, the Bellevue interchange, and the Todd Road interchange. There are no differences with respect to interchanges along Highway 12.

Traffic volumes, except on (and near) the interchanges themselves, are not dramatically different between the two alternatives. Deletion of the Baker Avenue ramps puts more traffic on the Hearne, Bellevue, and Todd interchanges; it also diverts some traffic to city streets that would otherwise use the freeway. Traffic volumes are as much as 3,400 ADT higher on US 101 with the Alternative Circulation Plan. Changes to city street traffic volumes, except at the interchanges themselves, is quite small and not a significant impact.
A comparison of the weekday vehicle miles of travel (VMT) between the two alternatives indicates that the Project (Caltrans interchanges) would generate approximately 4,800 more VMT per day than the Alternative Circulation Plan. From a countywide perspective, this is a rather modest change, less than a fraction of a percent (0.03 percent) of the total VMT generated by Sonoma County trips in the year 2010. The Project incorporated the Caltrans interchange alternative because, 1) it would represent a 'worst case' analysis in so far as city street traffic is concerned; 2) it represents the policy of the agency which owns and maintains the facility. The interchange plan ultimately arrived at is expected to be developed cooperatively between the City of Santa Rosa and Caltrans.

MITIGATED PROJECT ALTERNATIVE

SOUTHWEST AREA PLAN

Without the Area Plan, the Southwest quadrant of Santa Rosa would be expected to be built out according the provisions of the General Plan. The No Area Plan Alternative would not be the Environmentally Superior Alternative because without the Southwest Area Plan, environmental review of individually proposed projects would still occur under the General Plan; and this procedure would not necessarily foster coordinated area planning.

Because most of the significant Area Plan impacts relating to traffic generation, cultural resources, soils and geology, drainage, water quality, vegetation and wildlife, air quality, noise and other factors can be mitigated to levels of insignificance, the Environmentally Superior Alternative for the Area Plan is the Area Plan with the recommended mitigation measures factored into the Area Plan to create the Mitigated Area Plan Project.

PROPOSED PROJECTS

Because most of the significant impacts of the Proposed Projects can be mitigated to levels of insignificance, the Environmentally Superior Alternatives for the individual projects are the projects with the recommended mitigation measures factored in to create the Mitigated Projects.

2. PROJECT DESCRIPTION

2.1 BACKGROUND AND PROJECT ORIGINATION

SOUTHWEST AREA PLAN

The preparation of a detailed plan for Southwest Santa Rosa is required by the City's General Plan. The General Plan was adopted by the City Council in July of 1991. Completing the Area Plan will implement General Plan Policy LUR-2b which directs the Department of Community Development to "Prepare area plans for southwest and southeast Santa Rosa, using this General Plan as a guide, to comprehensively address issues unique to each area and refine the land use plan for each area ----"

To comply with Policy LUR-2b, as well as advance other General Plan policies, preparation of the Southwest Area Plan is intended to accomplish the following:

- Create livable neighborhoods, where services and community needs are met within a short distance of the home.
- Address issues, opportunities and constraints unique to the Southwest area.
- Plan future transportation and circulations systems which meet local and regional needs while minimizing disturbances to neighborhoods.
- Provide a basis for infrastructure funding, development timing and implementation priorities.

The Southwest Area Plan program was devised by a joint City Council/Planning Commission subcommittee. The Subcommittee determined that a two-phase process would be utilized for the Southwest Area Plan.

The Southwest Area Plan began in October of 1991 with the formation of a Citizens Advisory Committee to work with City planning staff to identify issues, opportunities, constraints and develop a sketch plan and policy statement that would act as a guide in preparing the final Plan.
2. Project Description

Phase I

From October, 1991 to August 1992, Phase I activities included reviewing existing data for the Southwest Area, including current General Plan policies for the Southwest area.

Next, draft policies and neighborhood concepts for the Southwest Area were prepared, including the identification of area-wide issues. A Citizens Committee then reviewed suggested policies and community planning concepts. The objective of this portion of the work was to develop a consensus of the issues in the community and recommend policies that would guide preparation of alternative sketch plans for the Southwest Area.

City staff of the Department of Community Development then prepared alternative sketch plans for the Southwest Area. The alternative sketch plans were then reviewed by the Citizens Committee, City Planning Commission and City Council. After public hearings before the City Planning Commission and City Council, the Selected Alternative Sketch Plan was adopted for utilization as a framework for completing preparation of the Southwest Area Plan documents. This is the base document addressed by this EIR.

Phase II

Phase II commenced at the conclusion of Phase I, and is continuing at this time. This EIR is a portion of Phase II work activities regarding the Southwest Santa Rosa Area Plan.

Coinciding with preparation of the Draft EIR, a screening analysis of the Selected Area Plan was conducted. The purpose of the screening analysis was to enable City staff to revise or amend the Selected Area Plan (and/or its accompanying policies), as necessary to avoid identified significant adverse impacts, where the impacts appear to be unmitigable through normal measures.¹

As a result of the screening analysis, it was recommended that alternative road alignments (if feasible) be investigated for the proposed western extension of Northpoint Parkway to South Wright Road, the proposed eastern extension of northpoint Parkway to the end of Standish Avenue, and the proposed easterly extension of Ludwig Avenue to Bellevue Avenue to avoid wetland impacts.
Impact areas regarding the removal of Valley oaks, circulation, air quality and noise impacts, and other subjects were noted in the screening analysis that would require special attention in the EIR. During EIR preparation, the Southwest Area Plan text is being amended to coincide with the findings presented in the EIR. The screening analysis did show that there would be no project-induced impacts respecting visual quality and vegetation and wildlife issues for several of the individual proposed project sites. These subjects are discussed in Section 3.1.5, Visual Quality and Community Character, and Section 3.2.3, Vegetation and Wildlife.

Phase II Area Plan activities also have included the preparation of necessary infrastructure plans, inclusive of utilities (sewer, water, storm sewer), and public services, and the development of phasing programs and financing measures to fund the infrastructure plans. Infrastructure planning and phasing programs are necessary in order for sewer services, water services and other infrastructure and public services to be provided to the Southwest Area. These services are discussed below in Section 2.2. In addition, the City has accepted 35 specific project proposals which are included within the Southwest Area Plan and EIR.

PROPOSED PROJECTS

As noted above, subsequent to preparation of the Southwest Area Plan, 35 individual project proposals located within the Southwest Area Plan study area have been submitted to the City of Santa Rosa for consideration. Along with the Area Plan, these 35 project proposals are evaluated in this EIR. The Area Plan itself and 35 project proposals are defined in more detail below.

2.2 SOUTHWEST AREA PLAN LOCATION, COMPONENTS AND SCHEDULING

LOCATION

The Southwest Area Plan encompasses approximately 3,800 acres (six square miles) in the southwest portion of the City of Santa Rosa in Sonoma County (see Figure 2.2-1, Regional Location Map and Figure 2.2-2, Location Map). Southwest Santa Rosa is generally defined by State Highway 12 on the north and U.S. Highway 101 on the east.

More specifically, the Southwest Area Plan study area is bounded by Highway 12 on the north, U.S. Highway 101 on the east and the City's Urban Boundary on the south and west (see Figure 2.2-3,
2. Project Description

Southwest Santa Rosa Area Plan Boundary). The western Urban Boundary extends from Highway 12 south to Ludwig Avenue along Wright Road, follows Ludwig Avenue east to Stony Point Road, extends south along Stony Point Road to Bellevue Avenue, follows Bellevue Avenue east to Juniper Avenue, extends south along Juniper Avenue to Todd Road, and east on Todd Road to U.S. Highway 101 (see Figure 2.2-2, Site Location Map).

COMPONENTS

Southwest Area Plan

For the most part, as a long-range development program, the Southwest Area Plan reflects the Santa Rosa General Plan land use diagram and General Plan development policies relevant to the Southwest area (for further information, refer to Section 3.1.1, Relationship to Plans and Figure 3.1.1-1, Draft Land Use Diagram). In preparing the Southwest Area Plan, some of the basic concepts of the General Plan which were considered included the number of dwelling units projected for the Southwest area, the type and amount of commercial uses to be developed, the size and location of new parks, and various policies relating to the protection of wetlands and creeks. The Southwest Area Plan itself provides further definition and explanation of these concepts.

While based upon the present General Plan in terms of the types and intensity of uses to be allowed in the Southwest area, the Area Plan’s Land Use map refines the General Plan map to reflect and respond to physical and environmental opportunities and constraints unique to the Southwest area. The result is a more detailed land use map, and a set of goals and policies which speak more directly to potential buildout of the Southwest area than do the goals and policies of the City-wide General Plan (see Section 3.1.2 of this EIR, Land Use, to review the land use designations of the Southwest Area Plan).

Thus, the policies of the Area Plan should be considered as being over and above, and not necessarily replacements for, General Plan policies. Where there are two or more policies which speak to the same issue, the more specific policy applies. The land use classifications used in the Area Plan are generally the same as those used in the City-wide General Plan (see Section 3.1.2, Land Use). Adoption of the Area Plan as a General Plan amendment will clarify the arrangement of land uses and eliminate any land use conflicts between the two plans.
2. Project Description

At buildout, and as envisioned in the Southwest Area Plan, the Plan area would contain 14,229 residential housing units and a population of approximately 38,320 individuals. There would be about 7,937,400 gross square feet of commercial space (retail, industrial, R&D, office space), 555,000 gross square feet of institutional space (schools, fire station, post office), about 148 acres of developed park land and approximately 150 acres of designated open space. This compares to an existing count of 4,616 residential units housing a population of approximately 14,122 individuals, 4,629,400 gross square feet of commercial space, 249,520 gross square feet of institutional space, 25 acres of developed park land and 14 acres of designated open space. Currently vacant land amounts to 1,424 acres.

Infrastructure

Development within the Southwest area will require major improvements in streets, sanitary sewers, storm drainage and water delivery systems. The Area Plan itself describes the basic area-wide infrastructure improvements required, and provides a phasing plan which relates the development of specific portions of the Plan area to certain infrastructure improvements. Mechanisms for infrastructure financing are identified in separate documents prepared by the City.

New infrastructure will be provided by either developers as development occurs, or by the City, County of Sonoma and local utility companies (i.e., Pacific Bell, P.G.&E, Cable), and State agencies (i.e., Caltrans). Many infrastructure projects will be combined as joint efforts of local government in conjunction with State and/or Federal Programs. Backbone, or major infrastructure projects would be provided by government entities or utility companies and include the following:

- Major roads and circulation improvements of arterial streets, highway improvements, highway interchanges and ramps/overpasses.
- Water mains 12 inches in diameter or larger.
- Major storm drainage improvements of channels and conduits.
- Sanitary sewer trunk lines 15 inches in diameter or larger.
- Electricity, natural gas and communications systems.
A complete inventory of required infrastructure improvements is contained in the Southwest Area Plan. However for EIR purposes, the following discussion provides an overview of the planned infrastructure improvements.

Road Projects: Table 2.2-1 provides a listing of road projects, inclusive of new roads and road widening projects. Right-of-way widths, number of lanes, type of project and funding sources are identified in Table 2.2-1. Figure 2.2-4, Future Circulation Network, illustrates principal circulation routes. Typical street widths and configurations are shown on Figure 2.2-5. A complete listing of road projects is provided in the Infrastructure Chapter of the Southwest Area Plan.

For environmental review purposes, the main concern with road projects is the need to acquire additional right-of-way for widening or new construction. Widening or new construction could adversely impact existing land uses, impact wetlands or wildlife, or require property condemnation. The following road projects will require new right-of-way for widening and/or the construction of new facilities (are not solely repair or reconstruction of existing facilities). This information is intended to supplement the data shown in Table 2.2-1.

#1. Bellevue Avenue - 50 feet of additional right-of-way width will be necessary from Mooreland Avenue to the Northwestern Pacific Railroad tracks (NWPRR).

#2. Bellevue Avenue Interchange - the proposal is to extend Bellevue Avenue from the west side of U.S. 101 to Santa Rosa Avenue on the east side of U.S. 101. A four lane overcrossing is proposed over the freeway (see Figure 2.2-6, Bellevue Avenue Interchange). North and southbound button-hook ramps would connect to Santa Rosa Avenue on the east side of the freeway and Moorland Avenue on the west side of the freeway, about 300 feet south of Bellevue Avenue. Corby Avenue, the west frontage road, will need to be realigned at Bellevue Avenue. A portion of this realignment has already been constructed by the City of Santa Rosa. Some improved commercial and residential property would be required for new right-of-way for this project.

As an alternative to the interchange proposal, Bellevue Avenue would be extended over U.S. 101 as a four lane overpass without the north and southbound button-hook ramps.

#3. Bellevue-Ludwig Connector - this will be a new road from Stony Point Road to Colgan Creek Channel (at Bellevue Avenue) in a 90 foot wide right-of-way.

#4. Burbank Avenue - this street will be upgraded to a collector street within a 52 foot wide right-of-way. Reconstruction would result in the removal of existing roadside ditches. The road also crosses Roseland Creek which could be narrowed at this point to avoid Creek impacts.
<table>
<thead>
<tr>
<th>Project Name (General Location)</th>
<th>Range Description</th>
<th>R-O-W (feet)</th>
<th># of Lanes</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker Avenue Overcrossing</td>
<td>Corby Avenue to Santa Rosa Avenue</td>
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<td>Colgan Creek Channel to Ludwig Avenue</td>
<td>90-B</td>
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<td>BIP</td>
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<td>Burbank Avenue</td>
<td>Sebastopol Rd to Northpoint Pkwy Ext.</td>
<td>52</td>
<td>2</td>
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<td>Corby Avenue</td>
<td>Baker Avenue to Hearn Avenue</td>
<td>68+</td>
<td>4</td>
<td>CT</td>
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<tr>
<td>Dowd - Wiljan Connector</td>
<td>Connect Dowd Drive with Wiljan Court</td>
<td>60</td>
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<tr>
<td>Fresno Avenue -Connection</td>
<td>Hearn Avenue to Northpoint Pkwy-East</td>
<td>90-B</td>
<td>4</td>
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<tr>
<td>Fresno Avenue -North</td>
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<td>62-B</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>Fresno Avenue -South</td>
<td>Northpoint Parkway to Ludwig Avenue</td>
<td>52</td>
<td>2-3</td>
<td>D</td>
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<td>Fulton/Wright Interchange</td>
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<td>4+2</td>
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<td>Ludwig Avenue</td>
<td>S. Wright to Stony Point Road</td>
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<td>Bellevue Ramps to Todd Road</td>
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<td>Stony Point Rd to southern Dutton Ave</td>
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<th>Project Name (General Location)</th>
<th>Range Description From - To</th>
<th>R-D-W (feet)</th>
<th># of Lanes</th>
<th>By</th>
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<td>Northpoint Parkway -West</td>
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<td>90-B</td>
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<td>D</td>
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</tr>
<tr>
<td>Todd Interchange (Partial Cloverleaf)</td>
<td>Moorland Avenue to Santa Rosa Avenue</td>
<td>82-B</td>
<td>4</td>
<td>CT</td>
</tr>
</tbody>
</table>

**R-O-W (Right-of-Way) LEGEND:**
- AUX Auxiliary Lane
- B Bike Lane
- B&SW Bike Lane and Sidewalk on Overcrossing
- CIP Capital Improvement Program
- HOV High Occupancy Vehicle Lane
- D Developer
- R-D-W (Right-of-Way)
- CT CalTrans
- BIP Backbone Infrastructure Program

**RIGHT-OF-WAY REFERENCE STANDARDS:**
- (+) = Centerline of Road..... TWLTL = Two-Way-Left-Turn-Lane
- 52 COLLECTOR 6' Planter + 8' Parking + 12' Travel -C-
- 62-B COLLECTOR or 6' Planter + 8' Parking + 5' Bike + 12' Travel -C-
- 68+ MAJOR 6' Planter + 14' Travel + 12' Travel -C- (No Parking)
- 82+B&SW OVERCROSSING 6' Sidewalk + 5' Bike + 5-12' Travel Lanes + 5' Bike + 6' Sidewalk
- 86-B MAJOR 6' Shoulder + 6' Bike + 2-12' Travel + 14' TWLTL + 2'-12' Travel + 6' Bike + 6' Shoulder
- 90-B MAJOR or 6' Planter + 8' Parking + 5' Bike + 2-12' Travel -C-
- 94 B&SW OVERCROSSING or 6' Planter + 6' Bike + 2-12' Travel + 14 TWLTL
- 6' Sidewalk + 5' Bike + 6-12' Travel Lanes + 5' Bike + 6' Sidewalk
#5. The Dowd Drive connection to Wiljan Ct. consists of approximately 650 feet of new collector street through presently vacant parcels.

#6. The Dutton Avenue connection is a proposed new arterial street extended from Hearn Avenue for approximately 1,800 feet to the proposed new Northpoint Parkway.

#7/#8. Fresno Avenue would extend from it's southerly terminus at Finley Avenue to Ludwig Avenue. This road would extend the length of the Old Naval Air Station north-south runway and parallel Roseland Creek on it's southern reach.

#9. Fulton/Wright Interchange - the proposal is to extend North Wright Road over State Highway 12 to connect with Fulton Road. The highway overpass would consist of six lanes with connecting eastbound and westbound highway on and off-ramps provided at Highway 12 (see Figure 2.2-7, Hwy 12/Fulton/Wright Interchange).

#10. Hearn Avenue West - about two to 12 feet of additional right-of-way will be needed for this reconstruction project.

#11. Hearn Avenue East - Approximately 30 feet to 50 feet of additional right-of-way width is required for this project.

#13. Juniper Avenue - this road would require a 50 foot wide right-of-way. Some half street sections are in place, another section south of Bellevue Avenue is an unimproved rural road with roadside ditches.

#14. Ludwig Avenue - would be reconstructed within a 62 foot wide right-of-way. Construction on the north side will result in the removal of roadside ditches. The northern edge would be improved to City Standards while the southern edge would remain rural in nature (roadside ditches, no curb).

#15. Moorland Avenue - some sections of this road are already reconstructed. Other sections will be reconstructed as development occurs.

#16. Northpoint Parkway East - this would be a new road to be constructed within a 90 foot wide right-of-way. Approximately 5,800 feet of new arterial street would be constructed from Stony Point Road to the existing end of Dutton Avenue south of the Colgan Creek channel.

#17. Northpoint Parkway West - this new road would have a variable right-of-way from 62 to 90 feet in width. The road would extend westerly from the terminus of the existing Northpoint Parkway to South Wright Road. The 90 foot wide right-of-way would narrow to 62 feet just west of the proposed Community Commons (Shopping Center).

#19. Sebastopol Road West - would be reconstructed within a 90 foot wide right-of-way and result in the removal of roadside ditches.

#20. S. Dutton Ave. - this existing rural road will need to be completely rebuilt. Roadside ditches would be eliminated. This road will ultimately terminate at Northpoint Parkway instead of Hearn Avenue.
### Typical Street Widths & Configurations

**MINOR STREETS & CUL-DE-SAC STREETS**

- **36'**
  - Parking both sides
- **30'**
  - Parking one side
- **24'**
  - No parking

**COLLECTOR STREETS**

- **40'**
  - Parking both sides
- **34'**
  - Parking one side
- **28'**
  - No parking

**INDUSTRIAL STREETS**

- **48'**
  - Parking both sides
- **36'**
  - Parking one side
- **28'**
  - No parking

**MAJOR STREETS**

- **64'**
  - Parking both sides
- **56'**
  - Parking one side
- **52'**
  - No parking (as approved by City Engineer)

**NOTE:** Street widths shown do not include the entire right-of-way. Other portions of right-of-way are devoted to bike lanes, turning lanes, curbs, gutters and planter strips. Sidewalks and public utilities are contained within easements beyond the right-of-way.

**SOURCE:** City of Santa Rosa
HWY 12 / S. WRIGHT-FULTON ROAD INTERCHANGE

Figure 2.2-7

Fulton Street

Hwy 12
6 lanes

at-grade
Westbound
Eastbound

S. Wright Road

SOURCE: DOWLING ASSOCIATES

NO SCALE

92244
2. Project Description

#22. S. Wright Road-North - This rural road will need to be rebuilt. There are existing homes north of Finley Avenue that are close to the right-of-way.

#23. S. Wright Road-South - this road would be reconstructed within a 62 foot wide right-of-way as development occurs. The eastern edge would be improved to City Standards with the western edge remaining rural in nature (roadside ditches, no curb).

#24. Stony Point Road-Far North - would be reconstructed with a 94 foot wide right-of-way. Right-of-way currently exists along the western side from Highway 12 south to Sebastopol Road. Right-of-way along the eastern side would have to come from development or acquisition of additional land.

#25. Stony Point Road-North - most reconstruction would occur within the existing right-of-way. Some additional right-of-way would come from new developments as well as acquisitions.

#27. Stony Point Road-Far South - an 86 foot wide right-of-way is estimated by the City for this road. The street would be improved to County standards (no sidewalks).

#28. Todd Road (Stony Point to Standish) - an 86 foot wide right-of-way is estimated for this road. The street would be reconstructed to County standards (no sidewalks).

#29. Todd Road (Standish to U.S. 101) - a 90 foot wide right-of-way is estimated for this segment. Additional right-of-way will be needed in cases where development has already occurred.

Water Supply

Existing and proposed water delivery systems are shown on Figure 2.2-8, Water System, and listed in Table 2.2-2. All water pipes will be installed within existing and proposed road rights-of-way, with the exception of branch water mains required to serve individual residential or commercial facilities.

The sizing of water lines within the Southwest Area depends on the timing of Sonoma County Water Agency's 36-inch diameter water intertie between the West Santa Rosa Transmission Main and the Petaluma Aqueduct. If the intertie is not constructed before substantial development occurs (as predicted), water lines may be required to be upsized to provide adequate fire flows. The Southwest Area Plan Infrastructure Chapter includes policies that address the ultimate water main sizing required for individual projects based upon the number of residential units or amount of commercial space proposed for each project. A complete listing of proposed water supply improvements is contained in the Southwest Area Plan Infrastructure Chapter (refer to Section 3.1.6, Utilities, for a discussion of water services).
### Table 2.2-2 - WATER INFRASTRUCTURE PROJECTS

<table>
<thead>
<tr>
<th>Location</th>
<th>From - To</th>
<th>Distance feet</th>
<th>Size inches/l/</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Aqueduct Intertie</td>
<td>Sebastopol Rd - Hearn Avenue (NWPRR)</td>
<td>18,300</td>
<td>36</td>
<td>SCWA</td>
</tr>
<tr>
<td>Bellevue-Ludwig Connector</td>
<td>Stony Point Rd - Colgan Creek Channel</td>
<td>1,400</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Burbank Avenue</td>
<td>Hughes Ave - Hearn Ave</td>
<td>3,900</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>Dutton Avenue Connection</td>
<td>Hearn Avenue to Northpoint Parkway-East</td>
<td>1,900</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Fresno Ave</td>
<td>Sebastopol Road - Ludwig Ave</td>
<td>8,400</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>Liana Drive</td>
<td>Burbank Ave - West Ave</td>
<td>1,950</td>
<td>12</td>
<td>D/CIP</td>
</tr>
<tr>
<td>Ludwig Ave</td>
<td>S. Wright Road - Stony Point Rd</td>
<td>7,850</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Juniper Avenue</td>
<td>Bellevue Ave - Todd Rd</td>
<td>4,700</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>Northpoint Pkwy - East</td>
<td>Hearn Ave - Lower Dutton Ave</td>
<td>3,100</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Northpoint Pkwy - West</td>
<td>South Wright Rd - Corporate Center Pkwy</td>
<td>3,550</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>Sebastopol Rd - East</td>
<td>Stony Point Rd - Olive (Upgrade 3 sections)</td>
<td>4,400</td>
<td>12</td>
<td>CIP</td>
</tr>
<tr>
<td>South Dutton Ave</td>
<td>Northpoint Pkwy - Bellevue Ave</td>
<td>4,000</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>South Wright Road - North</td>
<td>Sebastopol Rd - Northpoint Parkway-West</td>
<td>3,400</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>South Wright Road - South</td>
<td>Northpoint Parkway - Ludwig Ave</td>
<td>4,200</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Stony Point Rd</td>
<td>Lazzini Ave - Marble St</td>
<td>310</td>
<td>12</td>
<td>CIP</td>
</tr>
<tr>
<td>Stony Point Rd</td>
<td>Northpoint Parkway - Bellevue Ave</td>
<td>4,200</td>
<td>12</td>
<td>BI</td>
</tr>
<tr>
<td>Todd Road</td>
<td>Juniper Ave - Standish Ave</td>
<td>1,100</td>
<td>12</td>
<td>D</td>
</tr>
<tr>
<td>Yuba Drive</td>
<td>Stony Point Rd - Potential Elementary School</td>
<td>est 1,000</td>
<td>12</td>
<td>D</td>
</tr>
</tbody>
</table>

**Legend:**
- **BI** = Backbone Infrastructure Program
- **CIP** = Capital Improvement Program
- **D** = Developer Responsibility
- **SCWA** = Sonoma County Water Agency Project

**Notes:**
- Water main sizing is projected based upon the assumption that the SCWA Water Aqueduct Intertie is constructed.
- In the interim, water mains may need to be upsized to achieve the required fire and peak usage flows.
Sanitary Sewers

The sanitary sewer system has been designed by the City of Santa Rosa to handle the sanitary sewer needs of the Southwest area at buildout, and is planned to be constructed prior to the commencement of development within the Plan area.

Existing and proposed sanitary sewer facilities are shown on Figure 2.2-9, Sanitary Sewer System. The Corby Trunk replacement would occur within the Corby Avenue right-of-way. Local service lines and collectors required to serve individual residential or commercial facilities would connect to existing trunk facilities and be located under existing and/or proposed streets.

A complete listing of proposed sewer system improvements is contained in the Southwest Area Plan Infrastructure Chapter. It should be noted that the proposed Todd Trunk line is outside the Area Plan boundary and its size and timing for construction is uncertain at the time of EIR preparation. As shown on Figure 2.2-9, the southernmost portion of the Plan area currently served by existing sewer facilities would be included in the future Todd Trunk Tributary Area (refer to Section 3.1.6, Utilities, for a discussion of sewer services).

Storm Drainage

The Sonoma County Water Agency does not have a drainage plan for the entire Plan Area. However, areas within the Plan Area have been identified that have drainage problems for which solutions have been proposed by the Agency. The proposed drainage improvements were established in accordance with full buildout under the Santa Rosa General Plan land use designations. As necessary, runoff factors and drainage designs will be amended to reflect the buildout under the Southwest Area Plan land use designations at the time funding is for the improvements is approved.

Most of the drainage improvements would be located under existing roads to replace or augment existing drainage facilities. However, with respect to EIR preparation, several proposed facilities would be not located within existing road rights-of-way and would constitute new construction projects within vacant lands. These projects are described here. For a complete list of drainage improvement projects, refer to the Infrastructure Chapter of the Southwest Area Plan.
Hearn Avenue/Colgan Diversion Conduit. Phase One of this project would include the installation of a storm drain along Hearn Avenue, from Dutton Avenue to approximately 500 feet east of Stony Point Road, to carry the 10-year flow. Phase Two would consist of the installation of underground conduit from Hearn Avenue south to the existing storm drainage conduit running along the west side of Elsie Allen High School. The conduit would be designed to carry the 100-year flow from the 235 acre watershed developed to General Plan densities.

Naval Creek. Naval Creek drainage will be tributary to a conduit following the alignment of South Wright Road in a northerly direction for approximately 850 feet. From this point, it will join with the South Wright Conduit (carrying drainage from the north), and head westerly within the proposed Naval Creek Channel to Merced Avenue and the Laguna.

Springfield Conduits. These parallel drainages will convey drainage from the Springfield project area (south of Pyle), to the Roseland Creek Channel.

See Figure 2.2-10, Storm Drainage, for the locations of these and other drainage projects. Refer also to Section 3.2.2, Hydrology and Water Quality, for a discussion of drainage and water quality impacts. See also Table 2.2-3 for a listing of storm drainage projects.

Electricity, Natural Gas, Communications

Electricity, natural gas and communications services would be provided by the respected providers of these services (see Section 3.1.6, Utilities for a discussion of these services). At the time of Draft EIR preparation, no specific plans had been established for the provision of electricity, gas and communications services. Plans for these services would be expected to be developed as proposed projects come on line for development.

SCHEDULING

Development of the Southwest area will take place over a period of years, and a number of properties are likely to remain in their present undeveloped condition as surrounding properties are developed. Santa Rosa's growth and development will be a function of the private sector's response to public planning, expenditures, regulation and the economy.
2. Project Description

It is expected that future economic conditions will determine the rate of Plan buildout. However, because the Santa Rosa General Plan looks forward to the year 2010 and projects a Santa Rosa that is a medium size city in an expanded metropolitan region, the horizon year of 2010 is used in the analysis of technical issues in this EIR (i.e., Traffic and Circulation, Utilities, Public Services).

2.3 PROPOSED PROJECTS

The following briefly describes the 35 development projects proposed by individual project sponsors within the Southwest Area Plan boundary. The project descriptions are as presented in the individual project applications. Figure 2.3-1 illustrates the location of each project within the Southwest Area Plan. Figures 2.3-2 through 2.3-34 illustrate project site plans as submitted by the respective project sponsors. See also Table 2.3-1 for a listing of the projects and their characteristics.

For each project site, the developer is identified, the site location is identified, a brief description of the project is provided and any distinguishing environmental characteristics of the site that were noted in the record prior to EIR preparation, are explained.

**Project #1: Dutton Place**

**Developer:** Farrar

**Location:** 3.38 acre site at 2334 Dutton Ave. The site is located on the east side of Dutton Ave., just north of Hearn Ave. To the north of the site is Fouche's Auto Wrecking Yard. Currently on-site is one single family dwelling. APN#'s 43-041-37 43-041-45. See Figure 2.3-2.

**Project Description:** The project proposes to develop 24 single-family housing units at a density of 7.16 units per acre.

**Noted Environmental Feature(s):** Test shows no well water contamination from adjacent auto wrecking yard. Site is adjacent to a proposed neighborhood park site.

**Project #2: Westmeadow Park**

**Developer:** Kendall

**Location:** 4.5 acre site located at 1815 Burbank Ave. The project site is on the west side of Burbank Ave., midway between Sebastopol Rd. and Hearn Ave. Currently the site consists of 2 single family residences, a barn, and pasture. APN# 125-411-07. See Figure 2.3-3.

**Project Description:** The project proposes to build 36 single-family homes on 4.5 acres, with a density of 8 units per acre.
Table 2.2-3 - STORM DRAINAGE INFRASTRUCTURE PROJECTS

<table>
<thead>
<tr>
<th>Project Name</th>
<th>From - To</th>
<th>Distance feet</th>
<th>Size inches</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colgan Creek Channel</td>
<td>Corby Avenue to the NWP Railroad Tracks.</td>
<td>1600-2600</td>
<td>Lining</td>
<td>SE</td>
</tr>
<tr>
<td>Conceptual Area Drainages:</td>
<td>A series of conceptual drainage conduits</td>
<td>U</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>West Hearn/Yuba/Ludwig Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresno Avenue Conduits</td>
<td>Several conduits which drain the north-south runway area of the Air Center.</td>
<td>12,500</td>
<td>36-72</td>
<td>D</td>
</tr>
<tr>
<td>Hearn Avenue / Colgan Diversion Conduit</td>
<td>From Dutton Avenue west along Hearn Avenue to the existing conduit at Elsie Allen High.</td>
<td>6300</td>
<td>18-36</td>
<td>SCWA &amp; D</td>
</tr>
<tr>
<td>Moorland Avenue Conduit</td>
<td>From just south of West Robles Avenue to Todd Road, then west to the Moorland Channel.</td>
<td>2900</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>Naval Creek</td>
<td>West of the north-south runway to S. Wright Road, then north to the Naval Creek Channel.</td>
<td>2500</td>
<td>U</td>
<td>D &amp; SCWA</td>
</tr>
<tr>
<td>Naval Creek Channel</td>
<td>West of South Wright Road to Laguna</td>
<td>U</td>
<td>U</td>
<td>SCWA/D</td>
</tr>
<tr>
<td>Northpoint Village Conduit</td>
<td>Provides drainage for the Northpoint Village</td>
<td>2600</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>Roseland Creek Channel</td>
<td>From Ludwig Avenue north to the 90 degree bend (SW corner of Northpoint Business Park).</td>
<td>3800</td>
<td>Widen Channel</td>
<td>D</td>
</tr>
<tr>
<td>Sebastopol Road Conduit</td>
<td>Brittain Ln to Sebastopol Rd, west under Hwy 12, to a channel northerly of Occidental Road. Also includes drainage from Golden Gate/Leddy.</td>
<td>8500</td>
<td>18-84</td>
<td>D &amp; SCWA</td>
</tr>
<tr>
<td>South Dutton Avenue Conduit</td>
<td>Hearn Avenue south to Colgan Creek Channel</td>
<td>5000</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>South Wright Conduit</td>
<td>Finely Avenue west to S. Wright, south on S. Wright to Naval Creek Channel.</td>
<td>4900</td>
<td>18-60</td>
<td>SCWA</td>
</tr>
<tr>
<td>Springfield Drainages</td>
<td>2 conceptual drainages from the vicinity of Pyle Avenue to Roseland Creek.</td>
<td>U</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>Stony Point Road Conduit</td>
<td>Hearn Avenue to Colgan Channel</td>
<td>8500</td>
<td>18-60</td>
<td>SCWA</td>
</tr>
</tbody>
</table>
### Table 2.2-3 (cont'd)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>From – To</th>
<th>Distance</th>
<th>Size</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Avenue Supplementary Conduit</td>
<td>An additional conduit under West Ave to convey drainage from upper Roseland Creek watershed.</td>
<td>60</td>
<td>U</td>
<td>SCWA</td>
</tr>
<tr>
<td>West Robles Conduit</td>
<td>From Dutton Ave to Colgan Creek Channel.</td>
<td>4600</td>
<td>48-84</td>
<td>SCWA</td>
</tr>
</tbody>
</table>

**LEGEND:**

- D  
  - Developer Responsibility
- SCWA  
  - Sonoma County Water Agency
- SE  
  - Southeast Area Plan Infrastructure Responsibility
- U  
  - Undetermined

**NOTES:**

1. Distances and sizings are general estimates based upon conceptual alignments and are subject to revision
2. Many projects could be undertaken as joint efforts of the SCWA and individual developers. SCWA funding is not assured, however.
3. Funding for a portion of these projects is included within the Roadway Infrastructure costs, where drainage conduits coincide with roadway projects. Additional funds may be available through SCWA, Zone 1A funds.
<table>
<thead>
<tr>
<th>LAND USE</th>
<th>PROJECTS 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family du.</td>
<td>24</td>
<td>36</td>
<td>13</td>
<td>0</td>
<td>124</td>
<td>36</td>
<td>0</td>
<td>16</td>
<td>161</td>
<td>0</td>
<td>216</td>
<td>5</td>
<td>6</td>
<td>55</td>
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<td>Multi-Family du.</td>
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<td>25</td>
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<td>77</td>
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<td>5,000</td>
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<td>0</td>
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<td>Developed Park (acres)</td>
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<td>2.5</td>
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<td>77</td>
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<td></td>
<td>Residential Units</td>
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<td>518</td>
<td>170</td>
<td>440</td>
<td>5</td>
<td>12</td>
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<td>Comm/Inst (sf)</td>
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1/1 Represents existing land uses (SOURCE: Preliminary Admin. Draft - Southwest Area Plan) minus 68 single-family and 5 multi-family units to be removed.

1/2 Plan surplus represents the difference between the potential buildout of the Selected Area Plan and the total existing and proposed.

1/3 Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan - Staff Report on Alternative Sketch Plans.

1/4 Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.

1/5 Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.
PROJECT #2: WESTMEADOW PARK

FIGURE 2.3-3

SOURCE: KINCHELOE ENGINEERING
Noted Environmental Feature(s): The site is bordered to the north by a Riparian Forest Area designated by the Southwest Santa Rosa Master Environmental Assessment (MEA), and to the west by Roseland Creek. Valley Oaks are on-site.

Project #3: Western Gardens
Developer: Aloise
Location: 3.94 acre site located at 1320 Hearn Ave. The project is located on the south side of Hearn Ave. at the end of West Ave. Currently the site contains a single-family dwelling. APN#'s 43-071-13 43-071-20. See Figure 2.3-4.

Project Description: The proposed development consists of 25 multi-family units and 13 single-family lots.

Project #4: Fouche Village
Developer: Fouche
Location: 12.2 acre site at 2290 Dutton Ave. The site is located on the east side of Dutton Ave., north of Hearn Ave. To the immediate east of the site is the NWP rail line, and the Colgan Creek flood control channel. The site has historically been used as an auto wrecking yard, which is being phased out. APN #'s 125-501-07, 43-041-01, 43-041-46. See Figure 2.3-5

Project Description: The project proposes to develop 79 multi-unit dwellings (duets, and townhomes), on 9.95 of the project site, at a density of 7.94 units per acre. The project sponsor is seeking to sell to the City the remaining 2.25 acres for inclusion in a proposed City park.

Project #5: Southcreek Village
Developer: Stagecoach Dev. Co.
Location: 19.3 acres at 1360-1400 Burbank Ave. The site is located on the east side of Burbank Ave., south of Hughes Ave. Several residences, an orchard, and pasture currently occupy the site. APN#'s 125-252-02, 03, 04, and 125-331-01. See Figure 2.3-6.

Project Description: The proposed project consists of 124 single-family detached dwellings, an estimated 4,300 square feet of commercial development (on .3 acres), and 2.93 acres of open space.

Noted Environmental Feature(s): Roseland Creek flows through the southern portion of the site, and the property contains the Riparian Forest Area identified by the S.W. Santa Rosa MEA. A private cemetery is located on the easterly potion of the site, as well as a 1931 residence (both identified by MEA for Southwest Santa Rosa). A portion of the site is within the "Local Study Area" for the McMinn State Superfund Site, the remainder of the area is within the "Regional Study Area". Domestic wells in the area have been found to be contaminated with gasoline, diesel, and organic compounds associated with both motor vehicle fuels and solvents. Valley oaks on-site.
### PROJECT #3: WESTERN GARDENS

#### LOW DENSITY
+/- 3 lots fronting on Hearn Ave.
+/-10 lots fronting on new City street

#### MEDIUM DENSITY
+/- 2.3 ac. @ 13 = +/- 30 units

---

#### DATA/ STATISTICAL SUMMARY

A.P.N's: 43-071-13 & 20

1320 HEARN AVE.

**PROPOSED ZONING:**
- R1-6 and/or R1-2/6 @ Low Density
- R-3-20 @ Medium Density

**TOTAL SITE AREA**
- Low Density: +/- 3.94 A
- Medium Density: +/- 1.64 A
- Medium Density: +/- 2.30 A

**TOTAL UNITS**
- Low Density: +/- 43
- Medium Density: +/- 13
- Medium Density: +/- 30

**PARKING**
Per Ordinance

---

**SCALE:** 1" = 200'

---

**SOURCE:** ALAN B. COHEN ARCHITECT

---
PROJECT #5: SOUTHCREEK VILLAGE

FIGURE 2.3-6

SOURCE: ALAN B. COHEN ARCHITECT

FEET  0  100  200

92244
2. Project Description

Project #6: Baker Subdivision
Developer: Baker

Location: 5.75 acres at 2875 S. Dutton Ave. The site is on the west side of S. Dutton Ave. between Hearn Ave. and Bellevue Ave. A PG&E easement runs along western edge of the property. Existing uses are residential and horse pasture. APN# 043-111-06. See Figure 2.3-7.

Project Description: Site to be divided into 11 residential lots, at 21 lots per acre density.

Noted Environmental Feature(s): A portion of the site lies in a Probable Vernal Pool Area designated by the S.W. Santa Rosa MEA.

Project #7: Burbank Ave. Condominiums
Developer: Burbank Ave. Group

Location: 5.0 acres at 1780 Burbank Ave. The site is located approximately halfway between Hearn and Hughes Avenues on the east side of Burbank Avenue. Presently the site contains a residence and three large barns housing horses that are trained at the site. To the east of the barns are a riding ring and pasture. APN# 125-361-03. See Figure 2.3-8.

Project Description: The project proposes to develop 77 condominium units at a density of approximately 17 units per acre.

Noted Environmental Feature(s): The site contains an estimated .27 acres of jurisdictional wetlands.

Project #8: Ash Drive
Developer: Picchi

Location: 2.36 acres at 2180 Ash Drive. The site is at the existing southerly terminus of Ash Dr., south of Yuba Dr., west of Stony Point Rd. Currently the site is vacant or pasture land. APN # 35-011-218. See Figure 2.3-9.

Project Description: The proposed project seeks to develop 16 single-family detached homes on 2.36 acres.

Noted Environmental Feature(s): Site contains jurisdictional wetlands. The site is adjacent to a Known Vernal Pool Area and a Known Migration Route of the California Tiger Salamander as identified by the S.W. Santa Rosa MEA.
Project #9: Courtside Village
Developer: Courtside Development

Location: 68.5 acres at 3950 Sebastopol Rd. The site straddles Sebastopol Road, between the Santa Rosa Corporate Center and Wright Road. The site is bounded on the North by Highway 12, on the South by Golden Gate Avenue and on the West by McPhails Building Materials. Currently, the site includes homes, several livestock pastures and corrals, a church site, the Blue Star Gas operation, the Countryside Racquet club, and a few open or vacant lots. APN#'s 35-063-09 through 16, 35-102-09, 35-102-10, 35-102-15, 35-102-16, 35-102-20, 35-102-23, 35-102-25, 35-102-26, 35-160-26. See Figure 2.3-10.

Project Description: The project consists of a total of 518 units, 307 townhouses, 161 single family homes, and 50 condominiums. The northern section of the proposed project consist of 263 homes, 60% of which are townhouses, surrounding a large tennis/swimming/recreation/pre-school/day care center. The southern section of the proposed project consists of 205 homes, 70% of which are townhouses, surrounding a 20,000 square foot retail center with restaurants, shops, and a central Town Plaza. 50 condominiums would be located above the restaurants and shops of the retail center. The proposed project also include 2.5 acres of "Village Green" turf area.

Noted Environmental Feature(s): The site covers a Probable Vernal Pool Area as identified by the S.W. Santa Rosa MEA. The MEA recommended a designation of open space for the project area would be warranted because of the probable or historically reported presence of wetlands and endangered wildflowers in the area. The Biotic Survey reports 4.37 acres of jurisdictional wetlands at the site. Sebastopol meadowfoam is also reported at the site, as well as "some scattered oaks".

Project #10: Martin Homeless Housing
Developer: Martin

Location: The 5.2 acre site is located 4025 Sebastopol Road. The site lies between Sebastopol Road and Highway 12 near the Wright Road intersection. A 2,400 square foot vacant one-story building occupies the front portion of the site. APN # 035-063-05. See Figure 2.3-11.

Project Description: The project proposes to develop 170 multi-family homeless housing units and 35,000 square feet of office/warehouse space at the site.

Noted Environmental Feature(s): The S.W. Santa Rosa MEA indicates above-ground hazardous material storage in the vicinity, and that this area is probably underlain by hydric soils.

Project #11: Northpoint Village
Developer: Martin

Location: 61.2 acres at 2567 Stony Point Rd. The site is located at the northwest corner of the intersection of Hearn Ave. and Stony Point Rd. See Figure 2.3-12.
PROJECT #10: MARTIN HOMELESS HOUSING

FIGURE 2.3-11
PROJECT #11: NORTHPOINT VILLAGE

SOURCE: WITTER JEFFRIS ARCHITECT

FIGURE 2.3-12
Project Description: The proposed project would develop 216 single-family and Duplex units, 97 Row Houses, 7 Shop Front housing units, and 120 Multi-Family units, for a total of 440 housing units on 34 acres. The proposed project also contains 5,000 square feet of commercial land area, 3.24 acres of park land, and 9.01 acres of open space.

Noted Environmental Feature(s): Portions of the project site lie within a Known Vernal Pool Area designated by the S.W. Santa Rosa MEA, and are adjacent to the Roseland Creek. The parcel is also traversed by another unidentified drainage channel (swale, ditch, or natural channel). The project sponsor has identified 18 separate wetland areas totaling 1.0 acres at the site. Five of the wetland areas are reported to contain Sebastopol meadowfoam. Six mature oak trees known to exist on site. A proposal for on-site mitigation has been submitted to the Department of Fish and Game.

Project #12: Solarium 2010
Developer: Moser
Location: 2/3 of an acre located at 712-718 Brittain Lane. The proposed project is located 600' North of Sebastopol Rd. Currently on-site are 5 housing units, and a recycling center/storage building. APN # 35-251-32. See Figure 2.3-13.

Project Description: The proposed project would develop 5 single-family housing units and 2,000 square feet of commercial space, with some live/work space available for "cottage industries. Anticipated use includes a shop building to house R&D for the Solarium 2010 "Self Contained House of the Future" to be manufactured elsewhere.

Noted Environmental Feature(s): Some oaks known to exist on-site.

Project #13: Mountainview Homes
Developer: Hamann
Location: 1.17 acres at 2722 Stony Point Rd. The site is on the east side of Stony Point Rd., approx. 1000' south of Hearn Ave. Currently there are two rental units on the front portion of the site. APN# 134-290-05. See Figure 2.3-14.

Project Description: The project proposes to develop 6 single-family detached lots, and two lots with triplexes, for a total of 12 units.

Project #14: Lands of Kersch
Developer: Kersch
Location: 7 acres at 2872 Stony Point Rd. APN # 134-042-11. See Figure 2.3-15.

Project Description: The project proposes to develop 55 single-family housing units, at a density of approximately 8 units per acre.
FIGURE 2.3-14

PROJECT #13: MOUNTAINVIEW HOMES

TRIPLEX

NEW CITY STREET

± 438.21'

± 136.00'

SOURCE: ALAN B. COHEN ARCHITECT

FEET

0

50

100

3900 CF
LOT TYP
FIGURE 2.3-15

PROJECT 14: LANDS OF KERSCH

SOURCE: TDG CONSULTING CIVIL ENGINEERS, INC.
Noted Environmental Feature(s): The project site is within a Known Vernal Pool Area as designated by the S.W. Santa Rosa MEA. The southeastern portion of the parcel contains wetlands.

Project #15: Giffen Estates
Developer: Miller

Location: 5.6 acres at 2200 Giffen Ave. The site is currently unoccupied but contains some sheds. APN#’s 035-132-27, 035-132-33, 035-132-36. See Figure 2.3-16.

Project Description: The project proposes to develop 61 single-family residential units.

Project #16: Lands of Wismer
Developer: Wismer

Location: 20 acres at 2830 Stony Point Rd. The project site is located on the east side of Stony Point Rd. at the intersection of Yuba Dr. Currently the site contains one single family dwelling and pasture land. APN# 134-042-021. See Figure 2.3-17.

Project Description: The project proposes to develop a total of 176 residential housing units at the site, 144 single-family units and 32 townhouses.

Noted Environmental Feature(s): A portion of the project site is within a Known Vernal Pool Area as designated by the S.W. Santa Rosa MEA.

Project #17: Pero Apartments
Developer: Pero

Location: 1.3 acres at 2150 Giffen Ave. The site is located at the southwest corner of Giffen Ave. and Stony Point Rd. APN# 035-132-37. See Figure 2.3-18.

Project Description: The project proposes to develop 28 apartment units at the maximum density of 22.5 units per acre. Currently the property is vacant.

Project #18: Burbank Housing (2450 Old Stony Point Rd.)
Developer: Burbank Housing Dev. Corp.

Location: 6.0 acres at 2450 Old Stony point Rd. The site lies on the eastern side of Old Stony Point Rd. north of the intersection with Hearn Ave. The site presently contains a single family residence, a vacant mobile home, and various out-buildings, and two Little League baseball playing fields. APN#’s 125-521-04, 125-521-05. See Figure 2.3-19.

Project Description: The project proposes to develop a 110-unit townhouse development, and a separate 1,800 square foot daycare center. The project would be configured in several buildings.
Noted Environmental Feature(s): The project site has historically been the location of two small family-owned chemical companies. Budd Chemical Co. manufactured bleach and other laundry chemicals the site from the 1930's until 1967. From 1963 until 1989, Rosewood Chemical stored and repackaged chemicals used in cleaning pools and spas at the site. A gasoline storage tank was removed from the site in 1986. The site is adjacent to both a Known Vernal Pool area and a Probable Vernal Pool area, both designated by the S.W. Santa Rosa MEA, and Roseland Creek.

Project #19 (A and B): Skidmore Acres
Developer: Skidmore

Location: 7 acres at 2960 Stony Point Rd. The site is located directly east of the intersection of Ludwig and Stony Point Rd. Currently the property contains a mobile home, outbuildings and barns. APN# 134-042-15. See Figure 2.3-20.

Project Description: The project proposes to subdivide the site into 31 single-family housing lots. The project sponsor has proposed two potential circulation/site plans, which will be referred to as #19-A and #19-B.

Noted Environmental Feature(s): A portion of the site is located within a Known Vernal Pool Area as designated by the S.W. Santa Rosa MEA.

Project #20: South Dutton (Weiss/Grossman)
Developer: Weiss/Grossman

Location: 10 acres at 3000 and 3012 South Dutton Ave. The site is located at the northeast corner of South Dutton Ave and Bellevue Ave. A single family home is currently located at the site. APN#'s 043-122-11 and 043-122-07. See Figure 2.3-21.

Project Description: The project proposes to develop a total of 120 housing units, 60 single-family homes and 60 condominiums.

Noted Environmental Feature(s): The site is traversed by the Colgan Creek Flood Control Channel.

Project #21: Orchard Park
Developer: Poulsen

Location: 10 acres located at 3365 Moorland Avenue. The site is located at the northwest corner of the intersection of West Robles Ave., and Mooreland Ave. Currently the project site is the location of a working orchard/farm with a farm house and associated outbuildings. See Figure 2.3-22.

Project Description: The project proposes to develop 74 single family units and a 1.7 acre park area.

Noted Environmental Feature(s): Site is currently a working orchard and farm.
Project #22 (A & B): Springfield

Developer: Berkowitz et al.

Location: 75.8 acres in the vicinity of 1481 Ludwig Ave. The proposed project site consists of 17 parcels, and is generally bounded by Ludwig Ave. to the south, Pyle Ave. to the north, South Wright Rd. to the west, the Air Center and Madera Ave. to the east. APN#'s 35-201-06, 07, 11, 12, 14, 28, 29, 30, 31, 37, 38, 40, 41, 45, 46, 47 and 35-211-11. See Figure 2.3-23.

Project Description: The project seeks to develop approximately either 406 (22-A) or 417 (22-B) single-family dwellings, and 25,000 square feet of commercial space. A land use proposal specific to a 9.8 acre portion of the project site (APN# 035-201-06) has been provided. This proposal contains two alternatives for this portion of the site, and the total project will be referred to as "22-A" and "22-B" to reflect these two alternatives. Alternative A proposes to construct 36 low-density residential units on 4.5 acres of the 9.8 acre parcel. The remaining 5.3 acres would be designated as open space to retain and expand the estimated 3.3 existing acres of wetlands into approximately 4.5 acres near the central and southerly portions of the parcel. Alternative B proposes to develop 25 low-density housing units on approximately 3.2 acres of the 9.8 acre parcel, with the remainder of the site (6.6 acres) being designated as open space to retain the existing wetlands. No enhancements of the wetlands would take place under Alternative B, but may make such improvements available to other surrounding developments in need of wetlands mitigation. No modifications of the proposed project would take place off of the specific 9.8 acre parcel under either of the two alternatives.

Noted Environmental Feature(s): The site is in a known Vernal Pool Area designated by the S.W. Santa Rosa MEA, and has a total estimated 6.0 acres of wetlands on-site. The site is known to have Sebastopol meadowfoam, California Tiger Salamander and Mature Oaks.

Project #23: Young's Dutton Place

Developer: Young

Location: 5.6 acres at 2853 South Dutton Place. The project site is on the west side of South Dutton Rd. approximately halfway between Hearn Ave. and Bellevue Ave. APN# 43-111-06. See Figure 2.3-24.

Project Description: The project proposes to develop 34 single-family homes at 6.09 units per acre. Presently the site is undeveloped.

Noted Environmental Feature(s): The site is adjacent to a probable Venal Pool Area designated by the S.W. Santa Rosa MEA.

Project #24: Lara Subdivision

Developer: Lara

Location: 4.55 acres at 1119 Burbank Ave. The project site is located on the west side of Burbank Ave. directly opposite Hughes Ave., south of Rose Ave. Currently residential units are on-site. APN# 125-201-042. See Figure 2.3-25.
See Figure 2.3-23B and 2.3-23C for this parcel

Proposed Commercial Area

Note: See insert above for development parcels

SOURCE: HEDGEPETH LEMMON ARCHITECTURE; CARULIE / ASSOCIATES
2. Project Description

Project Description: The proposed project seeks to subdivide the 4.55 acre lot into 22 single-family housing lots.

Noted Environmental Feature(s): The site is within the Local Study area of the McMinn Ave. Superfund site.

Project #25: Patrick Brennan Acres
Developer: Patrick/Brennan

Location: 8.7 acres at 1884 & 1830 Stony Point Rd. The site is located directly east of the intersection of Giffen and Stony Point Rd. Currently on-site is a mobile home and various outbuildings. APN#’s 125-401-140, 125-401-170. See Figure 2.3-26.

Project Description: The proposed project seeks to develop 47 single-family housing units at the site.

Noted Environmental Feature(s): The site is adjacent to Roseland Creek. A records review of archaeological resources by Sonoma State Univ. determined that the proposed project site is "both historically and prehistorically sensitive" and recommends an archaeological study of the site. There is a large (60") oak on the site.

Projects #26 A and B (#26 & #32): California Stony Point/Bates Investment
Developer: Bates Investments

Location: The project site totals 18.14 acres, 13.14 acres at 2701 Stony Point Rd. and 5 acres at 2727 Stony Point Rd. The project site is located on the west side of Stony Point Rd. south of the Hearn Ave. intersection, north of Yuba Dr. Currently the site is vacant. APN#’s 134-022-08, 134-022-20. See Figure 2.3-27.

Project Description: The project sponsor has proposed two alternatives for this project which will be referred to as Alternatives 26-A and 26-B. Project 26-A proposes to develop 172 residential housing units, 85 single-family units, 12 townhomes, and 75 multi-family units (these may include additional townhome units, condominiums, apartments or other multiple family housing types), on 17.2 acres. Alternative 26-A also proposes .9 acres of Park/Open space. Under this alternative .41 of the identified .75 acres of wetlands would be impacted. The remaining .34 acres of identified wetlands may be protected as designated open space.

Alternative 26-B proposes to develop 175 residential housing units, 81 single-family units, and 94 multiple family housing units, on 17 acres. This alternative also proposes 1.1 acres of designated Park/Open Space. Under this alternative approximately .17 acres of wetlands which extend into the interior of the parcel would be relocated into a section of the proposed Open Space.

Noted Environmental Feature(s): Potentially jurisdictional wetlands and native oaks on-site.
ALTERNATIVE A

ALTERNATIVE B

FIGURE 2.3-27A
2. Project Description

Project #27: Lands of Pierre

Developer: Kaufman and Broad — South Bay, Inc.

Location: 17.3 acres at 2944 South Dutton Ave. The project site is on the east side of South Dutton Ave. and is bounded on the east by the Colgan Creek Flood Control Channel. Currently the site contains a developed general industrial area, and the remainder is used for hay production. APN#'s 043-122-02 and 043-122-13. See Figure 2.3-28.

Project Description: The project proposes to develop 90 single-family units. Approximately 2.78 acres is proposed to remain in its current use as general industrial.

Project #28: Valena (Village Station)

Developer: Valena

Location: 4.73 acres at 3675 Sebastopol Rd. The project site is at the northerly extension of Fresno Ave. between Sebastopol Rd and Highway 12. Currently the site contains a single-family structure. APN# 035-063-017. See Figure 2.3-29.

Project Description: The project proposes to develop 37 single-family residential units at 7.82 units per acre.

Project #29: Bellevue Ranch

Developer: Tuxhorn

Location: The proposed project consists of a 17 individual parcels, ranging in size from 1 acre to 19.53 acres, totaling 126.13 acres. The area these parcels are located in is between South Dutton Ave. on the east, Stony point Rd. on the west, and Hearn Ave. on the north. Additional parcels are located on the east side of South Dutton Ave. The project is grouped in 3 specific sites, designated as 29-A, 29-B, and 29-C. See Figure 2.3-30.

Project Description: The proposed project is roughly projected to consist of 450 single-family units, 150 townhomes, and 100 apartments for a total of 700 +/- units, in addition to the residential development the project proposes two commercial centers with 170,000 square feet of commercial development, and 7 acres of park land.

Project #30: Air Center

Developer: Santa Rosa Associates II/Madera Ave. Land Assoc.

Location: 316.7 acres located at the Santa Rosa Air Center Property. APN#’s 35-141-07,16,21 and 35-182-11. See Figure 2.3-31.
PROJECT #28: VALENA (VILLAGE STATION)

37 SINGLE FAMILY HOMES
PROJECT SITE 4.47 A.C.
DESIRED 8 1/4 UNITS PER A.C.

COVERED PARKING SPACES  74
OPEN PARKING SPACES      74
STREET AND MOUND COURT SPACES  88
TOTAL PARKING               136

FEET
Project Description: The proposed project contains a variety of uses including: Approximately 838 single-family and approximately 474 multi-family residential units for a total of 1,312 residential housing units, 6 acres commercial/retail and business services, 27 acres of developed neighborhood and community park sites, a possible 50 acre open space/wetlands preserve, and a 9 acre elementary school site. The remaining land area (approx. 29 acres) would be used for roadways and public infrastructure. The proposed project is expected to be phased over 10-15 years.

Noted Environmental Feature(s): The site contains a total of 21.72 acres of verified jurisdictional seasonal wetlands (Patterson). Identified on-site are Sebastopol Meadowfoam, and California Tiger Salamander larvae, and mature native oak trees. Portions of the site are within a Known Vernal Pool area as identified by the S.W. Santa Rosa MEA. The MEA also identifies Pogogyne douglasii ssp. parviflora, and Ranunculus lobii in this designated area.

Project #31: Ken Martin Property
Developer: Martin
Location: 7.4 acres at 2300 Hearn Ave. The site is located south of Hearn Ave., north of Yuba Dr. Currently the property is vacant. APN# 134-022-07. See Figure 2.3-32.

Project Description: The project proposes to develop 48 single and/or multi-family residential housing units at the site. A 1.4 acre park site is also proposed.

Noted Environmental Feature(s): Seasonal wetlands and native oaks on-site. The project site if traversed by the "Old Roseland Creek".

Project #32: SEE PROJECT #26

Project #33: Bellevue Interchange
Developer: Santa Rosa Department of Public Works
Location: The proposed interchange is located at the existing terminus of Bellevue Ave. on the western side of highway 101, and directly opposite on the east side of highway 101. Some improved commercial and residential property exists at the proposed site, and would have to be removed.

Project Description: Alternative 1: The proposed interchange would provide a four lane overcrossing of highway 101 for Bellevue Ave. North and southbound button–hook ramps would connect to Santa Rosa Ave. on the east side of the freeway, and to Moorland Ave. on the west side. Santa Rosa Ave. and Moorland Ave. would be widened between the ramps and Bellevue Ave. Corby Ave., the west frontage road, would need to be realigned at Bellevue Ave. A section of this realignment has already been accomplished by the City of Santa Rosa. Alternative 2: Bellevue Ave. would only be an overcrossing. The interchange design is shown on Figure 2.2-6.
2. Project Description

Project #34: Southwest Fire Station
Developer: City of Santa Rosa

Location: .81 acres at 1955 Northpoint Pkwy. The project site is located on the northern side of the Northpoint Pkwy. A single family residence is currently at the site. APN# 035-610-18. See Figure 2.3-33.

Project Description: The proposed project seeks to develop a Fire Station for the Santa Rosa Fire Department. The existing single-family unit would remain.

Noted Environmental Feature(s): A creek traverses the property. The creek potentially qualifies as a jurisdictional intermittent streambed; approx .05 acres of wetland.

Project #35: Bellevue Elementary School
Developer: Bellevue Union School District

Location: 10.7 acres at 2681 South Dutton Ave. The proposed school site is located on the western side of S. Dutton Ave. Currently the site is vacant. APN#'s 043-072-09 and 043-072-08. See Figure 2.3-34.

Project Description: The proposed project seeks to develop a .15-classroom elementary school to service students in the Bellevue school district.

Noted Environmental Feature(s): The site contains .34 acres of potentially jurisdictional wetlands.

2.4 REQUIRED APPROVALS

SOUTHWEST AREA PLAN

City of Santa Rosa

Approval and adoption of the Southwest Area Plan by the Santa Rosa City Council will be required prior to the approval and implementation of individual projects to be constructed under the provisions of the Area Plan. City Council approvals to amend the Santa Rosa General Plan to reflect the land use mix and policies of the Southwest Area Plan would also be required.

The EIR must be certified prior to the City Council taking action on the major infrastructure improvements called for under the Area Plan, inclusive of the Bellevue Avenue and Fulton/Wright interchanges, other roadway projects and storm/sanitary sewers and water supply lines.
The infrastructure projects would need to comply with City plans and specifications for roadway/utility design. A series of permits and approvals from public agencies would be required before these projects could be constructed. For example, the City Council would need to approve the projects and adopt Plan Lines (alignments) for proposed new roads.

The City of Santa Rosa would need to issue an encroachment permit for construction to occur within public rights-of-way. City grading permits would also be required in order to begin construction of the infrastructure projects.

Plans and specifications for the infrastructure projects would be reviewed and approved by the city in accordance with the adopted mitigation measures, bids would be awarded by the City for construction, and final acceptance of the improvements would be given after monitoring implementation of the required mitigation measures and final inspection.

**Sonoma County Water Agency**

Because the Sonoma County Water Agency owns right-of-way along Roseland Creek, Colgan Creek and Naval Creek within the Plan Area, a revocable license will be required prior to any work performed within Agency right-of-way. The agency will need to review any development plans for these areas prior to construction. Creekside greenway plans will need to be coordinated with the Agency to insure continued flood control protection, hydrological capacity and continued maintenance access.

The Sonoma County Water Agency would also review project design plans for compliance with County Flood Control Design Criteria to ensure that the projects would not increase the potential for flooding.

**State Department of Transportation (Caltrans)**

Because U.S. 101 and Highway 12 are State facilities, owned and operated under the jurisdiction of Caltrans, all phases of the Bellevue Avenue/U.S. 101 and Fulton/Wright/Highway 12 interchange projects, from inception through construction and final acceptance, must be accomplished in accordance with Caltrans policies and procedures. Caltrans would require review and approval of a Project Report (after EIR certification), for the interchange projects and must request approval of
any new freeway connections from the California Transportation Commission. A cooperative agreement between the City and the State (Caltrans) would be required for design and construction that will specify both agencies’ respective responsibilities. Caltrans would also review and approve the plans and specifications for the interchanges and overcrossings and would issue an encroachment permit for construction. A freeway agreement would also be required between the City and Caltrans to incorporate the approved interchange plans into the State’s system.

Metropolitan Transportation Commission (MTC)

MTC, which has jurisdiction over the regional transportation system, must also review the project for conformance with the State’s Implementation Plan for air quality. MTC has developed a regional model for evaluation potential ozone exceedances within the San Francisco Air Basin that may result from cumulative development and implementation of the Regional Transportation Plan and Transportation Improvement Program. Project review for local concentrations of carbon monoxide has been completed as part of this EIR.

Regional Water Quality Control Board (RWQCB)

Regulations pertaining to stormwater discharges associated with construction activity were issued by the U.S. Environmental Protection Agency in 1990. The regulations prevent the pollution of stormwater through the control of erosion, sedimentation and toxic or hazardous materials at construction sites. These regulations are administered by the Regional Water Quality Control Boards through the National Pollution Discharge Elimination System (NPDES) Program. Pollution reduction design is required as part of the permanent drainage system for the post-construction period as well as for the construction phases of the project. Certain categories of industrial facilities are required to obtain NPDES permits for the operation of the facilities. A permit is required for construction projects such as road extensions, overcrossings, interchanges or development projects that are greater than five acres in extent, thus applying to many portions of the Area Plan projects. A Storm Water Pollution Prevention Plan is required that identifies the sources of sediment and other pollutants, and ensures the reduction of sediment and other pollutants in the storm water discharged from a construction site. A monitoring program is required to aid the implementation of, and assure compliance with the Pollution Prevention Plan.
California Department of Fish and Game/U.S. Army Corps of Engineers

Approvals from the California Department of Fish and Game would be required for any necessary streambed alteration agreements. Additionally, the U.S. Army Corps of Engineers would need to issue a section 404 Permit under the Clean Water Act, and Section 10 Permit under the Rivers and Harbors Acts for any alterations to wetlands. These subjects are discussed further in Section 3.2.3, Vegetation and Wildlife.

PROPOSED PROJECTS

Prior to construction of individual projects for which the City has received applications, the City Council will need to adopt prezoning designations and individual property owners will need to submit annexation applications to the Local Agency Formation Commission (LAFCO) for approval (see Section 3.1.1, Relationship to Plans for additional information).

Under State law, the LAFCO applications require a "Plan for Providing Public Services", the purpose of which is to enable the Commission to determine the City's ability to provide services in a timely and financially feasible manner. LAFCO's requirement for the "Plan for Providing Services" may be determined to be met by submission of this EIR and Area Plan because of the infrastructure information included in these documents.

The City of Santa Rosa would need to review and approve project Tentative and Final Maps in order to issue grading and construction permits. As explained above for the infrastructure projects, approvals from the California Department of Fish and Game and U.S. Army Corps of Engineers could be required for any proposed disturbance to existing wetlands prior to site grading.

In addition, approvals as described above for the Sonoma County Water Agency and Regional Water Quality Control Board would be required for the proposed projects.

1. Southwest Santa Rosa Area Plan, Phase 1 Screening Analysis, EIP Associates, July, 1993. This document is available for public inspection at the Santa Rosa Department of Community Development, 100 Santa Rosa Avenue, Santa Rosa, California 95402.
2. The Urban Boundary is a boundary located to mark the outer limit beyond which urban development is normally not allowed. The Urban Boundary is intended to discourage urban sprawl by containing urban development during a specified period, and its location may be modified over time.

Major changes to the Urban Boundary can only be made as part of the five year General Plan update process or by a vote of Santa Rosa citizens. Changes of less than ten acres may be made by the City Council through amendment to the General Plan.

3. ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

3.1 SOCIAL/CULTURAL ISSUES

3.1.1 RELATIONSHIP TO PLANS

INTRODUCTION

This section provides an evaluation of the pertinent plans applicable to the Southwest Santa Rosa Area Plan, hereinafter referred to as either the Area Plan or Plan Area. Since the Area Plan is within the City's Urban Boundary and the Plan anticipates annexation of those portions of the study area that have not been annexed, City of Santa Rosa Goals, Objectives and Policies will govern the development of the Plan Area. The Area Plan has been developed to be in conformance with the General Plan with the general exception of the distribution of land uses, and once adopted, will take precedence over the General Plan as the final Plan of the City for this area. Therefore, a specific Land Use Diagram has been developed for the Plan Area (Figure 3.1.1-1).

This EIR evaluates the environmental impacts of implementing the Southwest Area Plan and provides measures to mitigate any potentially significant environmental effects of the project as a whole, or relating to any of the individual developments or infrastructure projects. Once the Area Plan has been adopted, project sponsors will be able to proceed with individual annexation requests and the project development approval/denial process.

SOUTHWEST AREA PLAN

SETTING

The 3800 acre Plan Area (sometimes referred to as study area) currently lies in the County of Sonoma, with approximately 900 acres within the limits of the City of Santa Rosa. Some areas in the
yet expressed interest in annexing (approximately 1,500 acres), but are within the area ultimately expected to be annexed to the City. The study area contains an estimated population of 14,122 persons within 4,689 dwelling units, approximately 4.6 million square feet of commercial, business park, and industrial development, four schools, two parks, and miscellaneous public/quasi public uses such as the Post Office, and places of religious worship. According to the Land Use Map of the Sonoma County General Plan, the portions of the Plan Area currently within the County consist of land designated primarily as Rural Residential. A small area south of Ludwig Avenue (near South Wright Road), is designated as Diverse Agriculture. The study area varies considerably ranging from more densely developed in the Roseland area to rural residential/agricultural areas located south and southwest of Roseland. (Figure 3.1.1-2).

Most proposed infrastructure projects are located in the study area within the Urban Boundary. Some road projects (Stony Point Road, South of Bellevue Avenue, and some storm drainage projects west of South Wright Road and south of Ludwig Avenue are outside the Urban Boundary (see Section 2, Project Description, for additional infrastructure information). The Southwest Santa Rosa Area Plan contains (along with other chapters) an Infrastructure Chapter that identifies major or "Backbone Infrastructure" improvements needed to support the anticipated development. The infrastructure chapter also strives to coordinate the construction of major infrastructure improvements to minimize land use disturbances and reduce costs.

Applicable plans and policies are determined by or acted upon by three jurisdictions: the City of Santa Rosa, Sonoma County, and the Local Agency Formation Commission (LAFCO). Present boundaries for the City of Santa Rosa, Sonoma County and lands under LAFCO jurisdiction are shown in Figure 3.1.1-3.

The Southwest Area Plan was prepared in accordance with the requirements of the Santa Rosa 2010 General Plan. Completing the Area Plan will implement the General Plan for the City of Santa Rosa concerning this area. The Area Plan was seen as an opportunity to:

- Comprehensively address issues, opportunities, and constraints unique to the area.
- Create livable neighborhoods, where services and community needs are met within a short distance of the home.
3.1.1 Relationship to Plans

- Plan future transportation and circulation systems which meet regional circulation needs while minimizing disturbances to neighborhoods.
- Provide a basis for infrastructure funding, development timing, and implementation priorities.

The Southwest Area Plan is comprised of eleven chapters consisting of: Land Use, Circulation and Transportation, Natural Resource Conservation, Housing, Historic Preservation, Community Design, Safety, Community Services and Facilities, Backbone Infrastructure, Land Use Proposals/Future Projects, and Implementation.

The Southwest Area Plan has identified several guiding principals. The Area Plan provides goals, objectives and policies to implement the following principals:

1. Develop integrated/full service neighborhoods (i.e. Neighborhoods which provide for day to day shopping services, schools, and parks).
2. Provide a mix of residential housing types within the individual developments and the Southwest as a whole.
3. Promote mixed use developments (providing jobs, services and shopping in proximity to housing) to reduce the dependence on the automobile.
4. Develop a high quality, attractive pedestrian and bicycle path network which: a) Links schools, parks, community facilities and shopping with housing; and b) links the Southwest Community to the rest of Santa Rosa (especially the downtown area) as well as an outlying (county) path and trail system.
5. Preserve the railroad rights-of-way for future public use by transit, bicycles and/or pedestrians.
6. Preserve rare and endangered plants and animals and assuring a no net loss of wetlands within the greater Santa Rosa Plains area as a result of development within the City's Ultimate Urban Boundary.
7. Preserve natural creek sections and enhancing channelized creek sections, where feasible.
8. Provide Public Services and Facilities for the Community.
9. Develop a comprehensive Community Design Program.
10. Determine Development Phasing and Timing of Infrastructure Improvements.
Santa Rosa General Plan

The reasons for preparing the Southwest Area Plan stem from issues identified during preparation of the Santa Rosa General Plan. Additionally, the preparation of the Southwest Area Plan will assist in meeting the requirements of the Local Agency Formation Commission as they relate to the processing of annexation requests. Finally, the Southwest Area Plan provides the opportunity to create desirable, livable neighborhoods that compliment existing neighborhoods and provide for the day to day needs of area residents.

The preparation of a detailed plan for the Southwest Area is required by the City's General Plan, which was adopted in July of 1991. Completing the Area Plan will implement General Plan policy LUR-2b, which directs the Department of Community Development to:

"Prepare area plans for southeast and southwest Santa Rosa, using this General Plan as a guide, to comprehensively address issues unique to each area and refine the land use plan for each area . . . . ."

In addition, the Area Plan will be also implementing the following policy:

Policy LUC-1b-2: "Developing two community shopping center facilities in southwest Santa Rosa, one in the vicinity of Northpoint Parkway extended west. Both centers shall be specifically located through preparation of the Southwest Area Plan".

Some of the basic concepts of the General Plan which were considered in the Area Plan included the number of dwelling units projected for the Southwest Area, the type and amount of commercial uses to be developed, the size and location of new parks, and various policies relating to the protection of wetlands, creeks, and significant trees. A reproduction of the Santa Rosa General Plan Land Use map for the Southwest Area is provided on the following pages (Figure 3.1.1-4).

Policies of the General Plan have been reviewed by City staff. Appropriate policies for this Area Plan have been developed in detail based on the policies in the General Plan. These policies are in general conformance with the General Plan, but are more detailed in scope and content and will take precedence over the General Plan for the Plan Area.

Sonoma County General Plan

The purpose of the Sonoma County General Plan is to express policies which will guide decisions on future growth, development, and conservation of resources through 2005 in a manner consistent with
GENERAL PLAN LAND USE (LEGEND)

LEGEND

- Residential, Country
  (1 unit per 5+ acres)

- Residential, Very Low Density
  (1 unit per .5 - 5 acres)

- Residential, Low Density
  (2 to 8 units per acre)

- Residential, Medium Density
  (8 to 15 units per acre)

- Residential, Medium-High Density
  (18 to 30 units per acre)

- Office

- Retail and Business Service

- Regional Shopping Center

- Community Shopping Center
  ( ▲ Existing, △ Proposed)

- Business Park

- General Industry

- Public / Institutional

- Proposed Schools

- Parks / Recreation

- Resort

- Existing Community / Neighborhood Park

- Proposed Community / Neighborhood Park

- Agriculture

- Open Space

- Urban Boundary

- Planning Area Boundary

- Creeks

- Homeless Shelter

SOURCE: CITY OF SANTA ROSA, DEPARTMENT OF COMMUNITY DEVELOPMENT
the goals and quality of life desired by the County's residents. The Sonoma County General Plan is, consistent with the plans of the City of Santa Rosa. The County plan does not actually regulate development within the city but is applicable to lands that have not been annexed and are located in the ultimate urban boundary.

According to the Sonoma County General Plan, it is the goal of Sonoma County to accommodate both urban and rural lifestyles. This should be accomplished by commitments to the following: a community centered concept, provisions of open space surrounding and separating urban areas, retention of agricultural resources, adherence to the principal of environmental suitability, and preservation of our natural resources.

The principal land use issues confronting the Santa Rosa region are:

- The ability of public services to accommodate projected residential, commercial and industrial growth.
- Protection of agricultural lands. Proximity to urban Santa Rosa has resulted in pressure to convert such land to rural residential use.

The County's objectives for the Santa Rosa and environs planning area are:

- To avoid urban development within the urban service boundary of Santa Rosa until annexation except where allowed by Specific or Area Plans as of 1986, and
- To limit future rural residential development to "infill" within areas already designated for such use.

The relevant policies that the County uses to achieve these objectives are as follows:

- Require full urban improvement standards and services for discretionary commercial, industrial, and urban residential projects within the urban service boundary.
- Consider requiring joint City-county design review for projects within the Santa Rosa urban service boundary.

The City currently conducts design review for individual projects (see also Section 3.1.5, Visual Quality and Community Character).
3.1.1 Relationship to Plans

Annexation

The process by which portions of the Study area will be annexed to the City is initiated by the City in response to a number of annexation requests for this portion of the city. Due to the number of requests for development, the City has initiated the Area Plan to address the environmental impacts of annexation and development of this portion of the urban service area. The boundaries for the study area have been set by the Santa Rosa City Council. The City has designated the land uses in this area for review in an environmental impact report on the Plan. Once all the information is compiled on the Plan and the Plan has been reviewed by the City and Public, the Area Plan is referred to the Planning Commission for prezoning, by which the Council and Commission, with public input, determine appropriate and consistent zoning for the area, should annexations occur. As part of the adoption of the Area Plan, the Planning Commission and City Council will initiate and adopt a General Plan Amendment to effectively change the General Plan to conform with the Area Plan. After approval of the Area Plan and adoption of the General Plan Amendment and prezoning, individual applications will be considered under the Area Plan goals, objectives, policies, zoning and land use designations.

LAFCO has specific requirements prior to annexation to the city. Each application to LAFCO for annexation must be submitted by a property owner and is to include a "Plan for Providing Public Services." While the City itself is not required to provide such information, it provides assistance to these property owners with appropriate information in the Infrastructure and Public Services Chapters of the Area Plan. This information is especially important for the larger and more complex projects requesting annexation to the city. As indicated in the County General Plan, property to be included within City boundaries should offer the full range of municipal services.

Prezoning

Prezoning for the larger projects in the Plan Area is likely to be implemented through prezoning of a Planned Community District (PC). The purpose of the PC District is to provide locations for well planned developments that conform with the General Plan, although the developments may deviate in certain aspects from the regulations of other districts that permit some or all of the same uses. The Planned Community District provisions are intended to allow for a variety of residential, commercial, industrial, or a combination of such uses within the same development.
3.1.1 Relationship to Plans

All uses within the Planned Community will require a Conditional Use Permit and design review approval for each use, with the exception of single-family dwellings on approved building sites and buildings accessory thereto which meet all the requirements of the R (Single-family Residential) District. A project's application for a PC District will need to be accompanied by a policy statement and proposed development plan for the district. All development of property within a PC District will need to conform with the approved policy statement and development plan. These requirements are set forth in Article 8 of the zoning code pertaining to Planned Community Districts.

Jurisdictional/Permitting Agencies

The following are public entities and agencies, in addition to the County of Sonoma and the City of Santa Rosa, that may exercise some jurisdictional control of the project (for additional information, see Section 2.4, Required Approvals):

- Sonoma County Local Agency Formation Commission (LAFCO) for annexation consideration;
- California Department of Fish and Game for Streambed Alteration Agreements;
- Sonoma County Water Agency for flood control and drainage improvements;
- U.S. Army Corps of Engineers for wetlands delineation and jurisdiction; and
- CALTRANS for encroachment permits.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The CEQA Guidelines indicate that a project will normally have a significant land use impact if it would conflict with adopted land use plans and zoning ordinances of the community where the project is located, and/or create a potential public health hazard or involve the use, production or disposal of materials that could be hazardous to people or animal or plant populations in the area affected. No impacts related to Plans and Policies have been identified because the Area Plan has been developed to meet the Goals and Objectives of the City of Santa Rosa as stated in the General Plan 2010.

The Southwest Area Plan Map is more comprehensive than the Existing General Plan Map developed for the Southwest Area. The Area Plan includes more complex and parcel-specific land
3.1.1 Relationship to Plans

use designations for the Plan Area, beyond that designated in the General Plan. The Plan also offers more mixed uses on the larger development sites than are recommended on the General Plan land use graphic. Although the General Plan and Area Plan are different in terms of land use mix, both Plans are consistent with the Goals and Policies identified in the Santa Rosa 2010 General Plan. The Southwest Area Planning effort has been undertaken to provide the most appropriate land uses for this portion of the (future) City.

Conformance with City of Santa Rosa General Plan's Goals and Objectives

The Proposed Area Plan has been prepared to conform with the goals and objectives of the Santa Rosa General Plan 2010. Therefore, no further discussion is provided in this section. The Area Plan is analyzed in this EIR on the basis of the physical environmental effects in the following sections: Land Use; Traffic and Circulation; Noise; Air Quality; Visual Quality and Community Character; Utilities; Public Services; Employment, Housing and Population; Vegetation and Wildlife; Soils, Geology and Seismicity; Hydrology and Water Quality; and Cultural Resources.
3.1.2 LAND USE

INTRODUCTION

This section discusses the existing land uses on and adjacent to the Plan Area. The evaluation addresses the potential effects of the project related to land use compatibility and the effects on agricultural uses.

SOUTHWEST PLAN AREA

SETTING

The project area lies in Central Sonoma County, in the southwest portion of the City Santa Rosa, in a mixed urban and rural area with some agricultural areas located in the southern portion of the study area. Land uses in the 3,800 acre study area are characterized by urban and suburban land uses in the northern portion of the study area and become more rural and agricultural in the south. Some of the land within the study area is within the city limits, other land has been proposed for annexation and the remainder of the land is within the Urban Boundary, but no action to annex has occurred. Land in the northeast portion of the study area (referred to as the Roseland area) is generally urban or suburban. Lands to the south of Hearn Avenue are mostly agricultural with occasional residences and outbuildings. Figure 3.1.1-2 illustrates existing land uses.

Of the 3800 acres, approximately 900 acres are within the City limits. Another 1400 acres are proposed for annexation (860 of which are proposed for urban type development). The remaining 1500 acres vary widely in character from the more densely developed Roseland area, to rural residential/agricultural areas located south and southwest of Roseland.

The Study area contains an estimated population of 14,122 persons within 4,616 dwelling units, approximately 4.6 million square feet of commercial, business park, and industrial development, four schools, two parks, and miscellaneous public/quasi public uses such as the Post Office, and places of worship. Approximately 1,424 acres are undeveloped or vacant. Presently two schools (Elsie Allen High School and Robert L. Stevens Elementary School) are under construction. The Stony Point Road/State Highway 12 interchange is also under construction.
In the 1970s and 1980s some of the land in the Plan Area was under Agricultural (Williamson Act) contract, but at present, there is no land with this status in the Plan Area. Some lands under agricultural contract are located to the south and southeast of the Plan Area.

**Farmlands of Local Importance**

 Portions of the Southwest Area are designated as Farmlands of Local Importance by the County’s Board of Supervisors. Based on information provided by the City of Santa Rosa, the County of Sonoma and verified through site visits, the Southwest Planning Area contains approximately 848 acres of Farmlands of Local Importance. The Farmlands of Local Importance occur on project sites 2, 5, 6, 7, 9, 11, 13, 14, 16, 18, 20-31 and 35. These sites are identified on Figure 3.1.2-1.

Important Farmlands are mapped and classified by the Department of Conservation in their Farmland Mapping and Monitoring Program (FMMP). The goal of the FMMP is to provide land use conversion information for decision makers to use in their planning for the present and future use of California’s agricultural land resources.

The FMMP compiles two kinds of farmland maps: Important Farmland maps for those areas that have modern soil surveys and Interim Farmland maps for those area lacking modern soil survey information and for which there is expressed local concern on the status of farmlands. The minimum mapping unit for important farmland and urban built-up land is 10 acres; for grazing land the minimum mapping unit is 40 acres. Each of the categories have specific soil and water requirements that must be met for the appropriate classification. Important Farmland maps for California are compiled using eight mapping categories, as illustrated on Figure 3.1.2-1 and explained below.

**Prime Farmland.** Lands with the best combination of physical and chemical features able to sustain long term production of agricultural crops. The land must be supported by a developing irrigation water supply that is dependable and of adequate quality during the growing season. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

**Farmland of Statewide Importance.** Lands similar to Prime Farmland but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. These lands have the same
reliable source of adequate quality irrigation water available during the growing season as required for Prime Farmland. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

**Unique Farmland.** Lands of lesser quality soils used for the production of the State's leading agricultural cash crops. These lands are usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California.

**Farmlands of Local Importance.** Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. The Sonoma County definition of this category is as follows:

- The hayland producing areas of the Santa Rosa Plains, Petaluma Valley and Tubbs Island Naval Reservation. Additional areas also include those lands which are classified as having the capability for producing locally important crops such as grapes, corn, etc., but may not be planted at the present time.
- Examples of these areas include the coastal lands from Fort Ross to Stewarts Point, areas surrounding Bloomfield, Two Rock, Chileno Valley and areas of Sonoma Valley in the vicinity of Big Bend, Vineburg and Schellville.

**Grazing Land.** Lands on which the existing vegetation is suited to the grazing of livestock. This category is used only in California and was developed in cooperation with the California Cattlemen's Association, U.C. Cooperative Extension Service and other groups interested in knowing the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

**Urban and Built-Up Land.** Lands occupied by structures with a building density of a least one unit to one and one-half acres, or approximately six structures to a ten-acre parcel.

**Other Land.** Lands which do not meet the criteria of any other category.

**Water.** Water Areas with an extent of at least 40 acres.

**Sonoma County Farmland Acreages.** According the 1992 report prepared by the California Department of Conservation, in 1990 Sonoma County had a total of 171,987 acres of Important Farmlands. This figure includes: 33,370 acres of Prime Farmland; 13,181 acres of Farmland of
3.1.2 Land Use

Statewide Importance; 20,715 acres of Unique Farmland; and 104,326 acres of Farmland of Local Importance. The County also had a total of 442,992 acres of Grazing Land.

Farmland Conversions 1988-90. According to the recent Farmland Conversion Report for 1988 to 1990, prepared by the Staff of the Farmland Mapping and Monitoring Program associated with the State of California Department of Conservation, in Sonoma County during this period Sonoma County has lost 1,032 acres of Important Farmland to Urban Built-Up Land Uses. The losses in Sonoma County Important Farmland to Urban Built-Up Land Uses between 1988 and 1990 include:

- 163 acres of Prime Farmland
- 81 acres of Farmland of Statewide Importance
- 2 acres of Unique Farmland
- 684 acres of Farmland of Local Importance

The loss of some of this land was committed to non-agricultural use between 1988 and 1990. The County reported that 441 acres of Important Farmland had been committed to non-agricultural use during this period. Non-agricultural use is considered "Existing farm and grazing land, and vacant areas, which have a permanent commitment for development." Committed land is property that is permanently committed by local elected officials to non-agricultural development by virtue of decisions which cannot be reversed simply by majority vote by a city council or board of supervisors. Examples of these lands would include an area undergoing sanitary sewer installations or for which a bond or assessments have been issued for public utilities or includes a planning area that has received discretionary approvals such as tentative subdivision map, tentative or final parcel map, or recorded development agreement. This information is furnished by the county to the Department of Conservation on a voluntary basis.

Williamson Act Lands. There are no properties within the Southwest Plan Area that are under any type of agricultural conservation program, such as Williamson Act. Under the Williamson Act, the owners of agricultural lands that qualify (based on acreage and agricultural production standards), enter into a ten year contract with the county that withdraws the property from development opportunities for a minimum of ten years. This agreement automatically renews each year unless it is specifically non-renewed. This assures that land is kept for agricultural purposes for a minimum of ten years. Once a landowner serves notice of non-renewal, the 10-year period of the contract
begins to run out. Until the contract has expired (at the end of 10 years), it continues in effect, and
development of the land inconsistent with the Williamson Act cannot take place. There are some
properties to the southwest and east of the Plan Area that are currently under Williamson Act
contract.

**Land Use Designations**

The Santa Rosa General Plan 2010 currently designates the property in the study area as: residential
(low, medium, and medium high densities); retail and business service; public/institutional; general
industry; business park; open space; and parks and recreation, as well as reserved sites for proposed
community and neighborhood parks and schools. The existing General Plan map is shown on Figure
3.1.1-4.

The Southwest Area Plan also includes a proposal for an interchange at Bellevue Avenue, a fire
station on Northpoint Parkway, and a new elementary school along South Dutton Avenue.

In developing the Southwest Area Plan, City staff developed several sketch plans, developed in part
with the public (see Section 2, Project Description, and Section 6, Alternatives). The Area Plan
includes a number of land uses from the General Plan and several land uses that have been
developed specifically for the Southwest Area. These new designations are considered a "fine tuning"
of the General Plan classifications as they relate to the needs of the Southwest community. The land
use designations utilized in the Southwest Area Plan are described below and illustrated in Figure
3.1.1-1. Modified or refined designations are preceded by an asterisk **.

**Residential Land Uses**

*Low Density/Open Space.* Density of 0.025 to 8 units per acre. This assumes an average density
of 4 units per acre. This classification recognizes the potential constraints associated with natural
resources (wetland, rare plants and animals) as they are generally identified in the southwest planning
area. Development in this category can range from one dwelling unit per 40 acres to as many as 8
units per acre. Allowed density is dependent on resolution of natural resource constraints either by
avoidance, clustering of development, or by mitigation for loss of resources. In all cases, one dwelling
unit per legally existing parcel may be permitted.
Land Use

Low Density. Two to 8 units to the acre, consistent with current General Plan Low Density classification. For planning purposes, an average of 5 units per acre is assumed.

*Medium-Low Density. The Area Plan designates this density from 8 to 13 units per acre. This land use classification is developed for the Plan Area and is not found in the current General Plan land use classifications. For planning purposes, an average of 10 units per acre is assumed.

The Medium-Low Density classification has been created to allow certain types of development which under a strict interpretation of current general Plan policies, might not be approvable. Under the General Plan's Low Density classification, a maximum of 8 homes per acre is possible. Under the next highest density land use classification, Medium Density, the allowable range is between 8 and 18 units per acre. General Plan policy requires that projects in Medium Density areas attain a minimum density of 8 units per acre (the "high" end of the Low Density category). Thirteen units per acre (the "mid-point" of the Medium Density classification) is required unless topography, parcel configuration, heritage trees, historic preservation or utility constraints make the midpoint impossible to achieve. Many of the more innovative and affordable types of housing projects, such as small-lot single family subdivisions, are typically designed within the 8-13 unit per acre range. The Medium-Low classification is included in the Area Plan to allow for these types of projects, and through it, support General Plan goals for housing affordability.

Medium Density. Eight to 18 units per acre. This land use category is the same as in the General Plan. For planning purposes, a density of 13 units per acre is required unless topography, parcel configuration, heritage trees, historic preservation or utility constraints make the midpoint impossible to achieve. In these cases development must achieve a minimum density of 8 units per acre.

Medium-High Density. Eighteen to 30 units per acre. Assumed average density is 25 units per acre. Development in this density range is required to be 18 to 25 units per acre unless topography, parcel configuration, heritage trees, historic preservation or utility constraints make the midpoint impossible to achieve. In these cases development must achieve a minimum density of 18 units per acre.
Commercial Land Uses

Retail Business and Service. This designation includes all types of stores and personal service establishments, including commercial strips located on a major arterial and free standing buildings. These areas are not considered shopping centers.

Office. Offices providing professional and business services that are not minor adjuncts to retail, industrial, or residential uses.

Business Park. A planned center for manufacturing with no nuisances (e.g. noise, visual clutter, noxious emissions, etc); distribution, and research. Offices, business park employee-oriented, low intensity commercial uses and warehousing (with no outside storage) may be permissible as stipulated in a Business Park Master Plan or Policy Statement.

General Industrial. An area for manufacturing and distribution activities with potential for creating nuisances, along with accessory office and retailing.

Mixed Use Categories

Commercial/Residential. The Santa Rosa General Plan identifies Neighborhood Convenience Shopping and Community Shopping Centers as subheadings under the umbrella of the Retail and Business Services classification. To distinguish these land use classifications from the land use classifications used in the Southwest Area Plan, the term "Neighborhood Commons" will be used to describe facilities with a Neighborhood orientation and "Community Commons" will be used to describe facilities with a Community orientation.

The definitions for these Commons classifications are expanded for the Southwest to encompass the requirements for: 1) Including public or civic land uses within Community Commons facilities; 2) Provision of medium and medium-high density housing in or nearby Community Commons facilities and medium density housing in or adjacent to a Neighborhood Commons; and 3) Developing these facilities as focal points for community interaction.

*Community Commons. A complex of retail and service enterprises anchored by a supermarket or possibly a super drugstore, and serving a community clientele. Restaurants, theaters or other similar
uses are also appropriate. A Community Commons shall be required to incorporate medium and medium-high density residential components either directly within or adjacent to the shopping area. Public uses shall also be included.

*Neighborhood Commons. A place for neighbors to meet, socialize, organize, shop, recreate, and educate. A Neighborhood Commons shall also incorporate medium density residential development as part of the overall design of the facility.

*Office and/or Residential. Encourages development of offices and Residential: Medium Density as a mixed use project but also permits developments of either category of land development, if found appropriate.

*General Industry/Residential. An area which has viable general industrial uses but for which a residential development may ultimately be appropriate. General Industrial uses for which an expansion is proposed must demonstrate appropriate transitions and compatibility with residentially designated lands and uses in the vicinity.

This designation also offers the opportunity to explore Cottage Industry or live/work types of uses. Such uses could include accountants, architects, artists, dress makers/tailors, insurance, photographers and other uses which do not have a tendency, once started, to impair the use and value of the area. Uses such as: carpentry work, dental or medical offices, and automotive repair/body/painting work are not permitted due to their intensity, use of hazardous materials, generation of noise, and other nuisance factors.

Other Categories

Open Space. Areas with special environmental conditions or significance, that is subject to wildfire, geologic hazards or provides watershed or important wildlife or biotic habitat. Residential uses with a minimum parcel size of 40 acres are allowable within the Urban Boundary.

Public/Institutional Facilities. An area or cluster of governmental or institutional facilities, such as hospitals, schools, utility facilities, government office centers, etc. Minor government offices located in private buildings, places of religious assembly not occupying extensive land areas, and similar
facilities are not shown on the Land Use Diagram. New facilities may be appropriate in any land use
category based upon need and subject to environmental review.

**Surrounding Land Uses**

Land uses surrounding the Plan Area include agricultural and rural residential uses to the south,
southwest and west of the project area. Much of the City of Santa Rosa is located to the north of
Highway 12 the primary east-west access road to and from the City. Retail and business serving uses,
public and institutional and residential land uses are found north of the study area (north of Highway
12). Highway 101 is located east of the project area and is the major north-south access to and from
the City. The property on the east side of 101 and south of Highway 12 is currently under evaluation
in the Southeast Santa Rosa Area Plan EIR.

**IMPACTS AND MITIGATION MEASURES**

**Standards of Significance**

The CEQA Guidelines indicate that a project will normally have a significant land use impact if it
would conflict with adopted land use plans and zoning ordinances of the community where the project
is located, and/or create a potential public health hazard or involve the use, production or disposal
of materials that could be hazardous to people or animal or plant populations in the area affected.
For purposes of this EIR, the evaluation of plans and policies are included in Section 3.1.1,
evaluation of impacts associated with Vegetation and Wildlife is included in Section 3.2.3 and
Hazardous Materials impacts are discussed in Section 3.1.8. Issues related to land use compatibility
are provided below.

The evaluation of land use impacts assesses the impacts of changes in the type and intensity of land
uses on the project site, and compatibility with existing or planned adjacent uses. A significant impact
is identified when proposed changes in type or intensity of land uses are not compatible with existing
or approved land uses on or adjacent to the project site. Of particular concern are situations which
could result where sensitive land uses (i.e. schools, child care facilities, senior housing developments,
etc.) could be adversely affected. A significant impact is also identified where the project would
contribute to cumulative land use changes (as a result of development of the proposed project and
other approved, proposed, and planned projects in the vicinity), which would result in substantial
changes to the land use pattern in the vicinity. Additionally, a significant impact could be identified
if the project converts Farmlands of Local Importance to non-agricultural uses; impairs the productivity of such agricultural land; or contributes to significant cumulative losses of such agricultural lands. In this analysis, Farmlands of Local Importance are considered subject to significant impact through conversion, loss or impaired productivity because these lands have been determined important to the local agricultural economy by the State Department of Conservation and Sonoma County Board of Supervisors due to its productivity.

The Area plan provides for essentially the same types and mix of land uses called for in the General Plan. An important distinction between the General Plan and the Area Plan is the specificity of the land use designations. The Area Plan is parcel specific in its designation of land uses where the General Plan is more general in nature. An exception to the parcel specific land uses is the location of facilities such as parks and schools. Symbolic designations were placed in areas which appeared to be the best locations based upon available information but may float within the vicinity of the designated parcel or area. Another feature of the Area Plan land use diagram is the mixed use designation which will allow more flexibility in achieving General Plan Goals while balancing the need to maintain viable existing uses which provide employment opportunities and services to the community. The Area Plan and its land use designations also provide guidance and opportunities to locate facilities within walking distance of parks, school, commercial service area and transit opportunities. Thus, the land use impacts identified primarily concern the loss of locally important farmland that would be removed as a result of buildout of this portion of the City. Other physical issues such as wetlands, cultural resources, hazardous materials, infrastructure and public services as well as other issues are contained in separate sections within this report.

In regards to the conversion of agricultural lands, the EIR identifies those lands which are considered by the State Department of Conservation and County of Sonoma to be Farmlands of Local Importance or agricultural preserves (Williamson Act lands), and quantifies the amount of these lands which would be lost to development due to the proposed Area Plan. No land under agricultural contract is within the Plan Area.

The Southwest Santa Rosa Area Plan has been developed as a whole to provide neighborhood services and identity within the Southwest Area of the Santa Rosa Planning Area. Refer to the traffic, noise, air quality, visual, and historic resources sections of this EIR to fully understand the composite land use effects on the project site and vicinity.
Impact 3.1.2-1

Implementation of the Area Plan would result in the loss of 848 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. The use of Farmland of Local Importance for urban uses would be an irreversible and irretrievable loss of agricultural land. (S)

The Sonoma County General Plan identified that a loss of agricultural land due to development will occur in the County. The loss identified was not quantified but would be most significant near cities and urban areas where development pressures are highest. The Plan area includes Farmlands of Local Importance. "Farmlands of Local Importance" are lands of importance to the local agricultural economy, as determined by each county's board of supervisors. The proposed Area Plan would remove approximately 848 acres of Farmlands of Local Importance. This figure includes loss of agricultural land from the 35 land use proposals. In addition, the figure also represents land that currently does not have development applications pending. It should also be noted that some farmland is in the process of being lost to development. For example, construction of the Elsie Allen High School north of Bellevue Avenue would result in the loss of 43 acres of Locally Important Farmlands, and there are other subdivisions within the Southwest Area under construction up to 22 acres in size that would result in the loss of Locally Important Farmlands. Since this is an irreversible commitment of important agricultural land to urban uses, the impact is considered significant. The loss of 848 acres of Locally Important Farmland constitutes 0.49 percent of the County's Important Farmlands (Prime Farmlands; Farmlands of Statewide Significance; Unique Farmland; and Farmland of Local Significance). The loss constitutes a loss of 0.81 percent of the Locally Important Farmland in the County of Sonoma. Overall, the Locally Important Farmland within the Southwest Area constitutes 22 percent of the total land within Southwest Area. This land is currently used primarily as pastureland within the project area.

Mitigation Measure 3.1.2-1

With the exception of no development, there are no mitigation measures that can eliminate the impact of the loss of Locally Important Farmlands within the project area. (S)

The timing of the loss can be controlled and agricultural land can be protected with some of the following measures: phasing; directing urban growth to lower quality soils in order to protect agricultural land; the use of clustering to avoid agricultural land; protecting other, existing farmland of equivalent, or better quality through planning policy that relies on an active and strategic use of
the Williamson Act; establishing buffers such as setbacks, berms, greenbelts and open space areas to separate farmland from urban uses; implementing a development impact fee to fund a farmland protection program that utilizes such land use planning tools as transfer of development rights or conservation easements, agricultural impact fees and farmland trusts. The use of such methods would not mitigate the significant loss of agricultural land in the Project Area due to implementation of the Southwest Area Plan. However, the Area Plan provides the Low Density/Open Space Category to protect sensitive land, such as wetlands (see Section 3.2.3, Vegetation and Wildlife).

It is recognized that there are a number of parcels within the Southwest Area containing Locally Important Farmlands that are fragmented and surrounded by developed land (see Figure 3.1.2-1), which would make it difficult to put the parcels to agricultural use. However, the loss of Important Farmlands on these parcels is considered in the context of cumulative development in this analysis (see also Section 3.1.5, Visual Quality and Community Character regarding the visual impacts of converting undeveloped farmland to urban development).

Land to the south of the Plan Area is currently under Agricultural Contract (Williamson Act contract) and once the Plan Area builds out adjacent to these areas, Williamson Act lands could face pressures to develop. As the infrastructure nears the new Urban Boundary limit, the rural property owners could observe increases in adjacent property values due to the proximity of available urban services. This could result in an increased interest to expand the urban boundary further to the south and west. An adjustment of the Urban Boundary has not been proposed at this time. If proposed, expansion of the Urban Boundary would require separate environmental review.

It should be noted that the Santa Rosa General Plan 2010 identified the development of land within Southwest Santa Rosa in Land Use Policy LUR-2b that states "Prepare area plans for southeast and southwest Santa Rosa, using this General Plan as a guide, to comprehensively address issues unique to each area and refine the land use plan for each area . . ."

Compatibility of the Area Plan with Surrounding Land Uses

The Area Plan Map projects are generally compatible with surrounding land uses. The surrounding land uses are primarily a mix of residential uses. The lowest density uses are found in the western and southern portions of the Plan Area closer to the Urban Boundary and agricultural lands south
of the Urban Boundary. Higher density residential land uses are located in the central and northern portions of the Plan Area.

Retail, business service and office uses are concentrated along the northeast and eastern edges of the Plan Area, which would be consistent with existing land uses in these areas. Retail and business services uses are also located within other areas of the Area Plan to serve local residents (see Figure 3.1.1-1).

PROPOSED PROJECTS

SETTING

Refer to the Setting discussion above for the Southwest Area Plan, which also applies to the Proposed Projects.

IMPACTS AND MITIGATION MEASURES

Compatibility of Proposed Projects with Surrounding Land Uses

Projects #1, 2, 4, 5, 7, 18, 24 and 25 are all located within the Roseland portion of the study area that is developed with suburban land uses. The subdivisions proposed in this area by the project sponsors appear to be compatible with the surrounding subdivisions and provide facilities recommended in the Area Plan that would improve the neighborhoods with amenities such as bicycle trails (project #5), a day care center (project #18) and new streets and utilities as needed to serve the projects. The Area Plan includes several parks for this area as well.

Projects #9, 10, 12, and 28 are all located along Sebastopol Road or just north of Sebastopol Road (project #12 is on Britain Lane, just north of Sebastopol Road). Sebastopol Road is the northernmost arterial in the study area. Projects #9 and 10 provide commercial projects with multiple family housing and appear to be in conformance with the Area Plan. Project 28 proposes single-family housing at about 8 units per acre consistent with the Low Density Residential designation of the Area Plan. Project 12 is proposed to contain housing with 2,000 square feet of commercial space as cottage industries, inclusive of an electric car shop and cabinet shop, which may be inconsistent with the Area Plan Low Density Residential designation.
Projects 15, 17, and 34 are located off Stony Point road in the vicinity of Giffen Avenue. Projects 15 and 17 would be contiguous, with project 15 offering single-family homes and project 17 offering apartments. A property also adjacent to #15 and 17 is not proposed for development. Project 15 offers a stubbed road to potentially serve this site although it is also accessed by Northpoint Parkway. Project 15 is located in the medium-low density designation. Project 17 exceeds the proposed medium density designation allowing 8-18 units per acre by 4.5 additional units per acre but proposes to utilize State Density Bonus Law to achieve a density bonus. Project 34 would be the proposed Southwest Area Fire station. A public facility such as a fire station is allowable in all districts of the study area.

Projects 8, 11, 26, 31, and 32 are all located east of Stony Point Road in the southern portion of the Study area, south of Northpoint Parkway. This area is primarily designated as low density residential with some areas of medium density along Stony Point Road. Project 8 is located within the designation for low density/open space uses, due to the natural resource constraints located in the southern portion of the study area. Project 8 is located outside an annexation boundary for the project area. Project 8 would develop single family homes on the 2.36 acre site. The proposal is within the allowable density for the site under the Area Plan.

Project 11 is located on a site south of the Northpoint Parkway on 61.2 acres. This project proposes a mixed use development that contains single family residential and duplex units, row houses, and shop front housing units which includes 5,000 square feet of commercial space, 3.24 acres of park land, and 9.01 acres of open space. These proposed land uses would be consistent with the Area Plan.

Projects 26 and 32 have been combined and the submitted applications include two alternatives. Both alternatives include single-family and multiple-family housing on land designated in the Area Plan as low and medium density. Alternative 26 B also includes a park/open space area. Since this site is located in a sensitive biological area, it will require further City review for consistency with the Area Plan.

Project 31 also proposes low density single and multiple-family housing and park in a sensitive biological area. This site is designated low density in the Area Plan and the project would be
consistent with the Area Plan. Because this site is located in an area with sensitive natural resources, it would be reviewed by the City for consistency with the Plan.

The projects located south of Hearn Avenue and west of U.S. 101 include the following: projects 3, 6, 13, 14, 16, 19, 20, 21, 23, 27, 29 and 35. The projects in this area range from 1.7 acres in project 13 to 126 acres in project 29. Because of the size of project 29, it is discussed separately below. Excluding Project 35 (Bellevue Elementary School) and Project 29 (Bellevue Ranch), the majority of projects fall in the range from 1.7 acres to 18 acres. The projects proposed in this area include either exclusively single-family residential dwellings or mixed single family and multiple-family residential (projects 3, 6, 13, 14, 16, 19, 20, 21, 23, 27, and 29), project 21 is the only one containing parkland. Project 33, the Bellevue Interchange, would also be located in this portion of the Plan Area.

Project 29, the Bellevue Ranch project proposes a mixture of single-family and multiple-family residential land uses with commercial uses (approximately 170,000 square feet). In addition, this development would also include a 7-acre linear park. This project site is located on land designated in the Area Plan as Residential: Low, Medium, and Medium-high, as well as neighborhood and community commercial centers.

Project # 30 is another larger scale project located in the Southwest Area. This project is located on the Santa Rosa Air Center Property and proposes primarily housing development that would be phased in over 10 to 15 years. The development would consist of single-family and multi-family residential units, 6 acres of commercial and retail development, and 27 acres of developed neighborhood and community park sites. The project would also allow for a 9 acre elementary school site and possibly approximately 50 acres of open space.

Project site 22 is located in the southwest corner of the study area. The site is located on land designated in the Area Plan as low density/open space because of the sensitive wetland areas located in this vicinity. The low density/open space category allows a maximum density of 8 units per acre and a minimum density of 0.025 units per acre depending on site natural resource constraints. The project seeks to develop approximately 406 to 417 single-family dwellings and ±25,000 square feet of commercial space. The applications for this project will require review by the City of Santa Rosa for conformance with the Area Plan.
3.1.2 Land Use

Locally Important Farmland

Based on significance criteria of CEQA Appendix G (y), and as explained on page 3.1.2-10, a project is normally significant if it will convert prime agricultural land to non-agricultural use or impair the productivity of Farmlands of Local Importance. The total area of Locally Important Farmland as designated by the Department of Conservation and Sonoma County that would be lost per project site is provided below:

- Project #1 - 0 acres
- Project #2 - 1.7 acres
- Project #3 - 0 acres
- Project #4 - 0 acres
- Project #5 - 10.8 acres
- Project #6 - 5.8 acres
- Project #7 - 1.3 acres
- Project #8 - 0 acres
- Project #9 - 31.3 acres
- Project #10 - 0 acres
- Project #11 - 61.2 acres
- Project #12 - 0 acres
- Project #13 - 0.3 acres
- Project #14 - 2.0 acres
- Project #15 - 0 acres
- Project #16 - 13.9 acres
- Project #17 - 0 acres
- Project #18 - 2.6 acres
- Project #19 - 0 acres
- Project #20 - 10.0 acres
- Project #21 - 1.7 acres
- Project #22 - 59 acres
- Project #23 - 2.6 acres
- Project #24 - 2.6 acres
- Project #25 - 0 acres
- Project #26 and #32 - 13.1 acres
- Project #27 - 17.3 acres
- Project #28 - 3.9 acres
- Project #29A,B,C - 121 acres
- Project #30 - 23.4 acres
- Project #31 - 7.4 acres
- Project #33 - 0 acres
- Project #34 - 0 acres
- Project #35 - 7.8 acres

Impact 3.1.2-2

Construction of the thirty-five projects would result in the loss of a total of approximately 406 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. (S)

The individual projects would reduce the amount of Farmlands of Local Importance in Sonoma County by approximately 406 acres. This loss would be 0.24 percent of the County's Important Farmlands (Prime Farmlands; Farmlands of Statewide Significance; Unique Farmland; and Farmland of Local Significance). Although this loss is considered significant, it should be noted that a number of the individual parcels are quite small, the only parcels over 20 acres are: project sites 9, 11, 22, 29 and 30. Parcels 5, 16, 26 and 27 are between 11 and 20 acres and the remaining 26 projects are under 10 acres in size. Many of these sites already contain homes, and individually, are too small to provide important farmland resources. In addition, the soils on project site 8 are affected by caustic
chemical spills (see Section 3.1.8, Hazardous Materials for additional information). Project sites 9, 11, 22, 29 and 30 are the largest sites (from 61.2 acres to 316.7 acres) in the project area and could still provide viable farmland benefits if they are not developed. Project sites 1, 3, 4, 8, 10, 12, 15, 17, 19, 25 and 34 do not contain Farmland of Local Importance and, therefore, are not discussed further.

**Mitigation Measure 3.1.2-2**

Other than not developing Farmlands of Local Importance, there are no other feasible methods to mitigate for the loss of this land. (S)

1. General Plan policy H-3b sets forth this requirement.
2. General Plan policy H-3b sets forth this requirement.
3.1.3 POPULATION, EMPLOYMENT AND HOUSING

INTRODUCTION

This section examines the population, employment and housing changes resulting from both the Southwest Area Plan and the current thirty-five individual projects that are covered by the Plan. Under CEQA, analysis of projects that are consistent with a community plan that has a certified EIR need only be limited to the examination of effects that are peculiar to that individual project. For this reason, analysis of the individual projects is limited to only those projects that are either inconsistent with the Southwest Area Plan, or contain potential impacts unique to that project.

This section of the EIR addresses some of the socioeconomic aspects of the proposed project. The principal study area for the direct population, employment and housing changes is the City of Santa Rosa. The study period is 1994-2010, the period within which the majority of the project is anticipated to be built. This setting subsection develops the baseline information required for establishing changes due to the project. Impacts are then developed as changes over the base year of 1990.

It is important to note the role that economic and social effects play in environmental impact analysis under CEQA. CEQA does not consider the economic or social effects of a project as significant impacts. However, although CEQA focuses on physical changes to the environment, the focus is not exclusive, nor is it independent of physical effects to human beings, directly or indirectly. Social and economic information has four potential roles in an EIR under CEQA. First, economic or social effects may be used as the basis for determining that a physical effect of a project would be significant. Second, social and economic effects can be an intermediate part of a chain of cause and effect from the proposed project to economic or social changes to physical changes caused in turn by the economic or social changes. These "intermediate" changes need to be analyzed only at a level of detail sufficient to trace the chain of cause and effect, with the focus being on the physical changes. Third, economic, social, and housing factors in particular must be considered by public agencies assessing the feasibility of mitigation measures and in making decisions about alternatives to a project to reduce significant impacts. Social and economic information must be part of the public record if it is to be used in decision making. CEQA allows economic or social information to be included in an EIR or in whatever form the agency desires. Finally and related to the third use,
social, economic, or other information relevant to planning decisions related to the environmental impact assessment and project approval can be included in an EIR for informational purposes.

SETTING

SOUTHWEST AREA PLAN

Population

The current population in the Southwest Area is estimated at 14,122 persons. Table 3.1.3-1 presents population estimates and projections for the years 1990, 2000, and 2010 for the City of Santa Rosa, Sonoma County, and the North Bay Area (Marin, Sonoma, Napa, and Solano Counties). This data is from the Association of Bay Area Governments (ABAG) and the Santa Rosa General Plan. A portion of the growth anticipated for the City of Santa Rosa represents new growth, and a portion will be through annexations of currently existing population and housing in unincorporated areas.

In general, Table 3.1.3-1 indicates:

- strong and sustained population, household, and employment growth for the City of Santa Rosa, Sonoma County, and the North Bay, with only a slight slowdown in growth over the 2000-2010 period as compared to the 1990-2000 period.

- slower growth overall for Santa Rosa, and Sonoma County over the next twenty year period than was experienced over the 1980-1990 time period.

- similar population and household growth rates in the North Bay area over the 1990-2000 time period as was experienced over the 1980-1990 time period, with a growth slowdown coming in the 2000-2010 time period.

- the projected population growth rate in Santa Rosa is equivalent to Sonoma County over the 1990-2000 period, and only slightly higher in the 2000-2010 time period.

Employment

The Southwest Area contains approximately 4.6 million square feet of commercial, business park, and industrial development. Tables 3.1.3-1, 3.1.3-2, and 3.1.3-3 give the employment figures for Santa Rosa and Sonoma County. Tables 3.1.3-2 and 3.1.3-3 profile employment in the City and County by aggregated major industrial classifications. "Agriculture and Mining" includes Crop Production, Livestock production and all of the extractive industries including Forestry, and Mining. "Manufacturing and Wholesale" is the production and wholesale distribution of goods including High Technology,
### TABLE 3.1.3-1
TRENDS AND PROJECTIONS — Population, Employment, and Housing.

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<thead>
<tr>
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<tr>
<td>Santa Rosa (ABAG)/1/</td>
<td>101,711</td>
<td>128,683</td>
<td>154,400</td>
<td>179,700</td>
<td>26.5%</td>
<td>20.0%</td>
<td>39.6%</td>
<td>26,972</td>
<td>25,717</td>
<td>51,017</td>
<td>34%</td>
</tr>
<tr>
<td>Santa Rosa G.P. /2/</td>
<td>NA</td>
<td>133,000</td>
<td>154,100</td>
<td>174,500</td>
<td>NA</td>
<td>15.9%</td>
<td>31.2%</td>
<td>133,000</td>
<td>21,100</td>
<td>41,500</td>
<td>NA</td>
</tr>
<tr>
<td>Sonoma County</td>
<td>299,684</td>
<td>388,222</td>
<td>465,750</td>
<td>537,700</td>
<td>29.5%</td>
<td>20.0%</td>
<td>38.5%</td>
<td>88,538</td>
<td>77,528</td>
<td>149,478</td>
<td>35%</td>
</tr>
<tr>
<td>North Bay/3/</td>
<td>856,654</td>
<td>1,069,504</td>
<td>1,325,950</td>
<td>1,502,500</td>
<td>24.8%</td>
<td>24.0%</td>
<td>40.5%</td>
<td>212,850</td>
<td>256,446</td>
<td>432,996</td>
<td>NA</td>
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<tr>
<td>HOUSEHOLDS</td>
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<tr>
<td>Santa Rosa (ABAG)/1/</td>
<td>40,433</td>
<td>50,829</td>
<td>60,500</td>
<td>71,800</td>
<td>25.7%</td>
<td>19.0%</td>
<td>41.3%</td>
<td>10,396</td>
<td>9,671</td>
<td>20,071</td>
<td>35%</td>
</tr>
<tr>
<td>Santa Rosa G.P. /2/</td>
<td>NA</td>
<td>48,600</td>
<td>60,500</td>
<td>72,900</td>
<td>NA</td>
<td>24.5%</td>
<td>50.0%</td>
<td>48,600</td>
<td>11,900</td>
<td>24,300</td>
<td>NA</td>
</tr>
<tr>
<td>Sonoma County</td>
<td>114,475</td>
<td>149,011</td>
<td>179,690</td>
<td>212,680</td>
<td>30.2%</td>
<td>20.6%</td>
<td>42.7%</td>
<td>34,536</td>
<td>30,679</td>
<td>63,669</td>
<td>36%</td>
</tr>
<tr>
<td>North Bay/3/</td>
<td>320,248</td>
<td>398,758</td>
<td>488,720</td>
<td>564,330</td>
<td>24.5%</td>
<td>22.6%</td>
<td>41.5%</td>
<td>78,510</td>
<td>89,962</td>
<td>165,572</td>
<td>NA</td>
</tr>
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<tr>
<td>EMPLOYMENT</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa (ABAG)/1/</td>
<td>55,926</td>
<td>83,220</td>
<td>102,770</td>
<td>125,290</td>
<td>48.8%</td>
<td>23.5%</td>
<td>50.6%</td>
<td>27,294</td>
<td>19,550</td>
<td>42,070</td>
<td>54%</td>
</tr>
<tr>
<td>Santa Rosa G.P. /2/</td>
<td>NA</td>
<td>75,900</td>
<td>98,500</td>
<td>NA</td>
<td>29.8%</td>
<td>63.3%</td>
<td>NA</td>
<td>22,600</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Sonoma County</td>
<td>103,356</td>
<td>155,290</td>
<td>204,190</td>
<td>253,600</td>
<td>50.2%</td>
<td>31.5%</td>
<td>63.3%</td>
<td>51,934</td>
<td>48,900</td>
<td>98,310</td>
<td>34%</td>
</tr>
<tr>
<td>North Bay/3/</td>
<td>307,905</td>
<td>426,370</td>
<td>544,540</td>
<td>676,540</td>
<td>38.5%</td>
<td>27.7%</td>
<td>58.7%</td>
<td>118,465</td>
<td>118,170</td>
<td>250,170</td>
<td>NA</td>
</tr>
</tbody>
</table>

/1/ SOURCE: Association of Bay Area Governments "Projections 92", and "Projections 92 Recession Update". ABAG data is for Santa Rosa's sphere of influence.

/2/ SOURCE: Santa Rosa General Plan 2010. Santa Rosa General Plan Data is for 1991 and includes all development within the ultimate Urban Boundary.

/3/ North Bay consists of Sonoma, Marin, Napa, and Solano Counties.

/4/ Indicates the area's percentage share of the next larger area. For instance, Santa Rosa is x% of Sonoma County for the respective parameter, and Sonoma County is x% of the North Bay Area.

/4/ "NA" indicates that the measure is not applicable for the row parameter, or not available.

SOURCE: EIP Associates.
<table>
<thead>
<tr>
<th>SECTOR/17</th>
<th>YEAR</th>
<th>TOTAL CHANGE</th>
<th>PERCENTAGE CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANTA ROSA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td>1,469</td>
<td>1,540</td>
<td>1,500</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td>10,741</td>
<td>11,510</td>
<td>21,120</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>11,382</td>
<td>16,780</td>
<td>21,120</td>
</tr>
<tr>
<td>Service Industries</td>
<td>13,756</td>
<td>24,180</td>
<td>31,800</td>
</tr>
<tr>
<td>Other</td>
<td>18,578</td>
<td>25,570</td>
<td>29,470</td>
</tr>
<tr>
<td>Total Jobs</td>
<td>55,926</td>
<td>83,220</td>
<td>102,770</td>
</tr>
<tr>
<td>Employed Residents</td>
<td>44,565</td>
<td>62,920</td>
<td>80,800</td>
</tr>
<tr>
<td>SONOMA COUNTY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td>6,589</td>
<td>6,830</td>
<td>7,410</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td>20,879</td>
<td>30,940</td>
<td>45,390</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>21,691</td>
<td>32,000</td>
<td>37,590</td>
</tr>
<tr>
<td>Service Industries</td>
<td>26,050</td>
<td>45,320</td>
<td>64,380</td>
</tr>
<tr>
<td>Other</td>
<td>28,147</td>
<td>40,200</td>
<td>49,420</td>
</tr>
<tr>
<td>Total Jobs</td>
<td>103,356</td>
<td>155,290</td>
<td>204,190</td>
</tr>
<tr>
<td>Employed Residents</td>
<td>131,123</td>
<td>194,387</td>
<td>242,000</td>
</tr>
</tbody>
</table>

/1/ Sectors are aggregated Standard Industrial Classification (SIC) codes as follows:
Agriculture and Mining: includes all jobs in SIC codes 1-9, 10-14 (excluding 074—veterinarians);
Manufacturing and Wholesale: includes all jobs in SIC codes 20-39 (manufacturing) and 50-51 (wholesale);
Retail Trade: includes all jobs in SIC codes 52-59;
Service Industries: includes all jobs in SIC codes 70-89 and SIC code 074, such as the following services: personal, business, repair, motion pictures, amusement and recreation, health, educational, legal, social, engineering, accounting, research, and management, as well as services provided by hotels and other lodging places;
Other: includes all jobs in SIC codes 15-17 (construction); 40-49 (transportation, communications, utilities); 60-67 (finance, insurance, real estate); and 91-97 (government).

### Table 3.1.3-3

**Santa Rosa — Employment Sector as a Percentage of Total**

<table>
<thead>
<tr>
<th>SECTOR/1/</th>
<th>YEAR</th>
<th>PERCENTAGE CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SANTA ROSA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td>2.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td>19.2%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>20.4%</td>
<td>20.2%</td>
</tr>
<tr>
<td>Service Industries</td>
<td>24.6%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Other</td>
<td>33.2%</td>
<td>30.7%</td>
</tr>
<tr>
<td><strong>Total Jobs</strong></td>
<td>55,926</td>
<td>83,220</td>
</tr>
<tr>
<td><strong>Employed Residents</strong></td>
<td>44,565</td>
<td>62,920</td>
</tr>
<tr>
<td><strong>SONOMA COUNTY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td>6.4%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td>20.2%</td>
<td>19.9%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>21.0%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Service Industries</td>
<td>25.2%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Other</td>
<td>27.2%</td>
<td>25.9%</td>
</tr>
<tr>
<td><strong>Total Jobs</strong></td>
<td>103,356</td>
<td>155,290</td>
</tr>
<tr>
<td><strong>Employed Residents</strong></td>
<td>131,123</td>
<td>194,387</td>
</tr>
</tbody>
</table>

1/ Sectors are aggregated Standard Industrial Classification (SIC) codes as follows:
- Agriculture and Mining: includes all jobs in SIC codes 1-9, 10-14 (excluding 074—veterinarians);
- Manufacturing and Wholesale: includes all jobs in SIC codes 20-39 (manufacturing) and 50-51 (wholesale);
- Retail Trade: includes all jobs in SIC codes 52-59;
- Service Industries: includes all jobs in SIC codes 70-89 and SIC code 074, such as the following services: personal, business, repair, motion pictures, amusement and recreation, health, educational, legal, social, engineering, accounting, research, and management, as well as services provided by hotels and other lodging places;
- Other: includes all jobs in SIC codes 15-17 (construction); 40-49 (transportation, communications, utilities); 60-67 (finance, insurance, real estate); and 91-97 (government).

3.1.3 Population, Employment, and Housing

Food and Spirits, and other Durable and Nondurable goods. "Services" includes jobs in Hotels, Automotive Services, Health Care, Education, and Professional Services (legal, engineering, etc). "Other" includes jobs in Construction, Utilities and Transportation, Finance, Insurance, Real Estate, and Government. The employment profile for an area is an indication of the composition of an area's economy and the present and future demand for labor force skills.

The principle employment points illustrated by Tables 3.1.3-1, 3.1.3-2, and 3.1.3-3 include the following:

- all employment sectors except Agriculture are projected to see increases in total employment over both the 1990-2000 and the 2000-2010 time periods in both the City and the County;
- both Santa Rosa and Sonoma County are projected to see shifts within their overall economies away from the Retail and Other sectors, and towards the Manufacturing and Wholesale, and Service sectors;
- Agriculture and Mining represent a small portion of both City and County total employment, and are projected to become a smaller portion in the future;
- the economies of the City and the County are very similar, with Agriculture being somewhat larger in the County than the City, and this will continue over the next two decades;
- slower new job growth over the next twenty years than was experienced over the 1980-1990 time period in all three areas.
- Santa Rosa contains roughly half of the total jobs in Sonoma County, while containing only roughly a third of the county population.
- total jobs in Santa Rosa are projected to increase by roughly 24% between 1990 and 2000 and 50% between 1990 and 2010;
- total jobs in Sonoma County are projected to increase by roughly 32% between 1990 and 2000, and by roughly 63% between 1990 and 2010;

**Housing**

It is estimated that the Southwest Area currently contains 4,689 residences, consisting of 3,078 single-family units and 1,611 multi-family units. Table 3.1.3-4 lists the housing development is Santa Rosa over the last twenty year period. This table illustrates that while total housing units in the City has increased rapidly over both the 1970-1980 and 1980-1990 time periods, the vacancy rate has fallen from 5.9% to 3.3%. This indicates that the demand for new housing has out paced the supply.
### TABLE 3.1.3-4

TOTAL, OCCUPIED AND VACANT HOUSING UNITS

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</thead>
<tbody>
<tr>
<td>Total Housing Units</td>
<td>19,161</td>
<td>35,192</td>
<td>48,019</td>
<td>83.7%</td>
<td>36.4%</td>
<td>150.6%</td>
</tr>
<tr>
<td>Occupied Housing Units</td>
<td>18,034</td>
<td>33,826</td>
<td>46,449</td>
<td>87.6%</td>
<td>37.3%</td>
<td>157.6%</td>
</tr>
<tr>
<td>Vacant Housing Units</td>
<td>1,127</td>
<td>1,366</td>
<td>1,570</td>
<td>21.2%</td>
<td>14.9%</td>
<td>39.3%</td>
</tr>
<tr>
<td>Vacancy Rate</td>
<td>5.9%</td>
<td>3.9%</td>
<td>3.3%</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>


### TABLE 3.1.3-5

MEAN HOUSEHOLD INCOME, HOME PRICES, AND HOUSING AFFORDABILITY
SANTA ROSA, 1970 AND 1990

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Median Household Income</td>
<td>$8,183</td>
<td>$46,765</td>
<td>471.5%</td>
</tr>
<tr>
<td>Median Home Price</td>
<td>$22,200</td>
<td>$192,800</td>
<td>768.5%</td>
</tr>
<tr>
<td>Required Household Income²</td>
<td>$6,650</td>
<td>$57,700</td>
<td>667.8%</td>
</tr>
<tr>
<td>Median Contract Rent</td>
<td>$117</td>
<td>$638</td>
<td>445.3%</td>
</tr>
</tbody>
</table>


¹ 1990 Household Income is the mean value.

² Required household income is calculated assuming 30 year mortgage, 10 percent down payment, 8.5 percent mortgage rate, and 28 percent qualifying ratio.
Table 3.1.3-5 shows the relationship between household income, home prices, and housing affordability in the City of Santa Rosa over the 1970-1990 time period. What this table illustrates is that the Median Home Price, and the Required Household Income needed to purchase a home, have increased at a much higher rate than Median Household Income. This table further illustrates that Median Contract Rent has outpaced household income growth over the same time period, but to a lesser extent than home prices.

The Association of Bay Area Governments has projected housing needs by income category for the City of Santa Rosa between the years 1988-1995. These projections are listed in Table 3.1.3-6.

General Plan Policies

Santa Rosa 2010 sets forth the following Twenty Year Goals for housing in the City:

H-1 To provide sufficient land for the new housing that will be built to accommodate the projected population growth.

H-2 To maintain the existing stock of affordable housing.

H-3 To encourage construction of new affordable housing that will help the City maintain its fair share housing goals.

H-4 To respond to the housing needs of handicapped persons, elderly, persons, the homeless, large families, single parent households, and first-time buyers.

H-5 To eliminate discrimination in housing opportunities in Santa Rosa. To assure that access to housing in Santa Rosa will not be denied on the basis of race, ethnic or national origin, religion, marital status, age or physical handicaps, except for mobile home parks, and other developments designed specifically for seniors or handicapped will be permitted to exclude children as permanent residents.

H-6 To eliminate governmental restraints to desired housing production to the fullest extent possible.

H-7 To maximize energy efficiency in residential areas.

Affordable Housing

The City of Santa Rosa Housing Allocation Plan (Ordinance #2961) sets forth the following requirements of new housing development in the City, which are summarized below. This summary
TABLE 3.1.3-6

PROJECTED HOUSING NEED BY INCOME CATEGORY 1988-1995

<table>
<thead>
<tr>
<th>INCOME CATEGORY</th>
<th>UNITS</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low Income Units Needed</td>
<td>2,062</td>
<td>26%</td>
</tr>
<tr>
<td>Low Income Units Needed</td>
<td>1,427</td>
<td>18%</td>
</tr>
<tr>
<td>Moderate Income Units Needed</td>
<td>1,745</td>
<td>22%</td>
</tr>
<tr>
<td>Above Moderate Income Needed</td>
<td>2,696</td>
<td>34%</td>
</tr>
<tr>
<td>Total Projected Housing Need</td>
<td>7,930</td>
<td>100%</td>
</tr>
</tbody>
</table>


is for illustrative purposes only, and is not a complete definition of the Ordinance #2961. A complete definition of the City of Santa Rosa Housing Allocation Plan is available from the City.

Section 21-02.040. Applicability

- The provisions of this chapter (Housing Allocation Plan) apply to all residential developments in the City and to all residential developments which are prezoned by the City.

Section 21-02.050. Allocation Requirements

- All residential developments shall provide allocated units equal to 15% of the total dwelling units in the development, if the dwelling units are physically within and are part of the development ("on-site" units).

- If the allocated units are permitted to be provided off site ("off-site units), the number of allocated units to be provided shall be equal to 20% of the total number of units in the project, which shall be determined by counting the number of units located both on site and off site.

- Each allocated unit required to be provided under this chapter shall be available for occupancy only by households of low income.
3.1.3 Population, Employment, and Housing

- The developer has the option of providing each allocated unit either as a "for rent" or "rental unit" or as a "for sale unit."

- An allocated unit may be rented to a household of very low income, at a rent affordable to a low income household, adjusted for the units size.

- Some developments have the option of meeting the requirements of the Housing Allocation Plan by dedicating land on or off site or by paying an in-lieu fee.

Growth Management

The City of Santa Rosa has enacted a growth management ordinance (Ordinance #2960 "Growth Management"). This ordinance limits the total number of new "entitlements" in a given year. An entitlement is defined as the authorization to obtain a building permit for the construction of a dwelling unit. Essentially, this ordinance limits the number of new building permits available in a given calendar year to: 1992 through 1995, 1,000 each year; 1996 through 2000, 950 each year; 2001 through 2005, 900 each year; 2006 through 2010, 850 each year. This limits the maximum number of new building permits that could be obtained, and therefore the total number of new residential dwellings, over the 1992-2010 time period to 17,500 units. Fifty per cent of the new entitlements made available in any given year must be reserved for units that meet the following criteria: Units that are "Qualifying Units" (as defined under the Housing Allocation Plan) and units which are affordable to low or very-low income units, second dwelling units, and units developed in mixed-use projects. Administration of this ordinance is carried out by the Director of Community Development.

IMPACTS AND MITIGATION MEASURES

Introduction to the Analysis

Population and employment changes themselves would not be considered significant environmental impacts under CEQA. Because these effects are not considered significant, in this section these issues are not analyzed with the same method as environmental impacts. Instead, the magnitude of the socioeconomic impacts are quantified and contrasted with the relevant projections to illustrate the magnitude of these impacts relative to future growth. No assessment of significance is made and mitigation measures are not proposed for these socioeconomic impacts, as, pursuant to CEQA, these impacts in and of themselves are not significant, and therefore not subject to mitigation. It should also be noted that under CEQA, "It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment (section 15126, subd. (g))." The

92244 3.1.3-10
potentially significant environmental impacts associated with changes in population, employment, and housing — public services, traffic, air quality, etc. — are analyzed in other sections of this EIR. Destruction or dislocation of housing would be considered a significant impact under CEQA, while additions to the housing stock would be considered a beneficial impact.

Pursuant to CEQA, cumulative impacts are identified and analyzed if they appear to be potentially significant. The cumulative impact analysis is based on reasonably foreseeable, closely related projects within the planning area.

**Housing**

**Impact 3.1.3-1**

Annexation and development of the Southwest Area Plan would increase the housing stock in the Southwest Area by 9,540 units at mid-point density. This would be a 206% increase over the existing housing stock in the area. The Southwest Area would contain 14,229 units at buildout. These units represent a 29% increase over the existing housing total in the City of Santa Rosa.

Development in the Southwest area is expected to develop at mid-density or greater, as the Santa Rosa General Plan contains policies which both encourage and require development at mid-range density or greater. At mid-range density the Southwest Area Plan would contain a total of 14,229 housing units, 7,628 single-family units and 6,601 multi-family units (see Table 3.1.3-7). The 14,229 units at mid-density buildout represent an addition of 9,540 units to the housing stock in the Southwest Area (figure accounts for approximately 73 existing residential units which would be removed to allow for constructing new residential units), a 206% increase over the existing 4,616 units. These additional units would be a 19.8% increase over the City's 1991 total of 48,601. The units anticipated under the Southwest Area Plan would represent 46% of the new housing growth projected by ABAG for the City over the 1990-2010 time period, 40% of the new housing growth anticipated by the Santa Rosa General Plan, or 62% of the total units possible under the Growth Management Ordinance.

**Mitigation Measure 3.1.3-1**

No mitigation required for this socioeconomic impact.
Table 3.1.3-7
SOUTHWEST SANTA ROSA PLAN EIR – PROJECT PROFILE

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1/1 Represents existing land uses (SOURCE: Preliminary Admin. Draft - Southwest Area Plan) minus 68 single-family and 5 multi-family units to be removed.
1/2 Plan surplus represents the difference between the potential buildout of the Selected Area Plan and the total existing and proposed.
1/3 Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan - Staff Report on Alternative Sketch Plans.
1/4 Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.
1/5 Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.
3.1.3 Population, Employment, and Housing

Population

Impact 3.1.3-2

Development of the Southwest Area Plan Selected Alternative at mid-density is projected to increase population in the Southwest Area by 24,199 persons, an increase of approximately 171% over the area's estimated current population. This population growth represents a 30% increase over the City of Santa Rosa's 1990 population, and 58% of the growth anticipated by the Santa Rosa General Plan.

The current resident population of the Southwest Area is estimated at 14,122. Under the Southwest Area Plan, at mid-density buildout the area is projected to have a resident population of 38,321 persons (see Table 3.1.3-8), a net increase of 24,199 persons. This population increase represents approximately 47% of the population growth projected for the City of Santa Rosa by ABAG between 1990 and 2010, or approximately 58% of the population growth anticipated by the Santa Rosa General Plan over the same period. Full buildout of the Southwest Area Plan would represent 16% of the total population growth projected for Sonoma County over the 1990-2010 time period.

Mitigation Measure 3.1.3-2

No mitigation required for this socioeconomic impact.

Employment

Impact 3.1.3-3

Commercial development allowed under the Southwest Area Plan would have the capacity to generate 7,931 new jobs in the Southwest Area.

Table 3.1.3-9 gives the total estimated existing and new employment that would be generated in the commercial space that is anticipated to be developed under the Southwest Area Plan\(^\text{20}\). This table indicates that the Southwest Area currently contains an estimated 11,464 jobs, and, given the anticipated retail, office, industrial and government services uses, the total non-residential area is projected to contain 19,395 jobs, a net gain of 7,931 new jobs. These 7,931 new jobs would be an increase of 9.5% over the existing jobs in the City\(^\text{21}\), and represent 35% of the new job growth anticipated for the City by the Santa Rosa General Plan. These 7,931 new jobs represent 18.9% of the new jobs projected for the City of Santa Rosa by ABAG.
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Note: Population projections assume 2.72 persons per household for single-family units, and 2.33 persons per household for multi-family units.

1/ Represents existing land uses (SOURCE: Preliminary Admn. Draft - Southwest Area Plan) minus existing housing units to be removed.

2/ Plan surplus represents the difference between the potential buildout of the Area Plan and the total existing and proposed.

3/ Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan - Staff Report on Alternative Sketch Plans.

4/ Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.

SOURCE: EIP Associates.
### Table 3.1.3-9
SOUTHWEST SANTA ROSA PLAN EIR - EMPLOYMENT ESTIMATE

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<th>34</th>
<th>35</th>
<th>Projects</th>
<th>Existing</th>
<th>Plan/2</th>
<th>Plan/3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Space (sf)</td>
<td></td>
<td>378</td>
<td>222</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>803</td>
<td>10,965</td>
<td>6,548</td>
<td>18,316</td>
<td></td>
</tr>
<tr>
<td>Institutional/S</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>76</td>
<td>85</td>
<td>499</td>
<td>495</td>
<td>1,079</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employment</td>
<td></td>
<td>378</td>
<td>222</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>76</td>
<td>887</td>
<td>11,464</td>
<td>7,044</td>
<td>19,395</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Employment Estimates assume employment generation factors based on commercial land use, from ABAG, "1987 Input-Output Model and Economic Multipliers for the San Francisco Bay Area", Table 4, p.19.

/1/ Represents existing land uses (SOURCE: Preliminary Admin. Draft - Southwest Area Plan) minus existing housing units to be removed.

/2/ Plan surplus represents the difference between the potential building of the Selected Area Plan and the total existing and proposed.

/3/ Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan - Staff Report on Alternative Sketch Plans.

/4/ Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.

/5/ Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.

SOURCE: EIP Associates.
Mitigation Measure 3.1.3-3

No mitigation required for this socioeconomic impact.


3. Ibid, Discussion, p. 146.

4. Ibid.

5. Ibid.

6. Ibid, Section 15131(c), p. 145.


11. City of Santa Rosa, Santa Rosa 2010 Final Environmental Impact Report, July 16, 1990, p 3.2-12 and Table 3.2-7. Approximately 7,300 housing units and 17,000 persons are in unincorporated areas anticipated to be annexed to the City by the year 2010.


15. The following discussion of the City of Santa Rosa Growth Management ordinance is provided for illustrative purposes only, and is not meant as complete definition of this ordinance. For a complete definition please refer to Ordinance No. 2960 of the Santa Rosa City Code "Growth Management".


19. ABAG's Households projection is used as a proxy measure for housing units, because they do not estimate housing units or project housing growth directly. Additionally, ABAG's 1990 estimate of households measures the City's sphere of influence, including the Southwest Area, and therefore is higher than the General Plan estimate, which uses the Department of Finance's 1991 estimate of actual housing units. The percentage of ABAG growth was calculated using the number of new units in the Southwest Area (9,613), as a percentage of the total household growth projected for the City (20,971). The General Plan housing figures include only those units within the current city limits, and do not include the Southwest Area. Therefore, the percentage of General Plan growth was calculated using the total number of units in the plan area at buildout (14,229), as these would almost all be new units added to the City.


### 3.1.4 TRAFFIC AND CIRCULATION

**SOUTHWEST AREA PLAN**

**SETTING**

**Transportation Network Description and Classification**

**Street Classifications:** Streets are classified as either freeways, expressways, arterials, or collectors (the General Plan 2010 provides definitions of these facilities). US 101 and Highway 12 are classified as freeways in the vicinity of the project. Presently, Highway 12 is a four lane freeway as far west as Stony Point Road, where the freeway ends and Highway 12 becomes a four lane divided expressway to approximately Llano Road. From Llano Road west, Highway 12 is an undivided two lane highway with access control. Streets classified as arterials in the Southwest include South Wright Road, Stony Point Road, Dutton Avenue, Ludwig Avenue, Bellevue Avenue, most of Hearn Avenue, Todd Road, Sebastopol Road, Corporate Center Parkway and Northpoint Parkway (see Figure 3.1.4-1).

Streets classified as collectors include Fresno Avenue, Finley Avenue, Lombardi Lane, Campbell Drive, Burbank Avenue, West Avenue, South Dutton Avenue, Corby Avenue, Moorland Avenue, and Primrose Avenue.

**Transit Services:** Santa Rosa CityBus is the primary transit provider in the Southwest Area (see Figure 3.1.4-2). CityBus is operated by the Santa Rosa Department of Transit and Parking, and routes provide service within the City of Santa Rosa plus some areas immediately adjacent to the City. All services converge on the Second Street Transit Mall (between B Street and Santa Rosa Avenue) in downtown, where connections can be made with other CityBus routes, as well as intercity and inter-regional transit services.

The two CityBus routes serving the Southwest include:

**Route 9 - Corporate Center Parkway.** This route serves the Corporate Center area, the Sebastopol Road retail district, and connects to the 2nd Street Transit Mall in downtown Santa Rosa. Service is provided every 30 minutes Monday through Friday, from 6:00 AM to 7:30 PM, and every 60 minutes on Saturdays and Sundays. On Saturdays, service is operated 6:30 AM to 7:30 PM, and on Sundays from 10:30 AM to 4:30 PM.
**SOUTHWEST AREA PLAN**

Dowling Associates

**STREET DESIGNATIONS**
- Freeway
- Arterial
- Collector
- All Others Are Local Streets

Source: City of Santa Rosa, Santa Rosa 2010 General Plan, July 1991.

Figure 3.1.4-1
EXISTING AREA STREETS AND CLASSIFICATIONS
Existing General Plan

Source: City of Santa Rosa, Santa Rosa 2010 General Plan, July 1991.
Figure 3.1.4-2
EXISTING TRANSIT SERVICE

SOUTHWEST AREA PLAN

Dowling Associates

CITYBUS
- 9 Corporate Center Parkway
- 12 Roseland

SONOMA COUNTY TRANSIT
- Route 22x
- Route 42
- Other Golden Gate and Sonoma County Transit Service
Route 12 - Roseland. This route provides a one-way clockwise loop that serves Corby Avenue (just north of auto row), Hearn Avenue, West Avenue, and Sebastopol Road. Buses run every 30 minutes from 6:15 AM to 7:45 PM Monday-Friday; with hourly service on Saturdays and Sundays. Saturday service is from 6:45 AM to 7:45 PM, and Sunday service is from 9:45 AM to 3:45 PM.

Intercity transit service is provided by Sonoma County Transit. Route 22X (Route 20) also operates nearby on Highway 12. These routes connect Santa Rosa (2nd Street Transit Mall) to Sebastopol (22X) and Occidental (20). Routes operate daily, with limited service on weekends. Route 42 provides service from the 2nd Street Transit Mall along West Third Street, Dutton Avenue, Hearn Avenue, Corby Avenue, Todd Road, and Standish Avenue. Six trips per weekday are provided in each direction.

Inter-regional (i.e., inter-county) transit service is provided by Golden Gate Transit (GGT), a division of the Golden Gate Bridge, Highway, and Transportation District. The nearest routes operate on Santa Rosa Avenue, and are not within walking distance of the Southwest area.

**Bikeways:** Existing bikeways in the area are limited to:

- **Sebastopol Road**
  - Bike lanes (class II) between Corporate Center Parkway and Stony Point Road.

- **Corporate Center Parkway**
  - Bike lanes (class II) between Sebastopol Road and Northpoint Parkway.

- **Northpoint Parkway**
  - Stony Point Road to Corporate Center Parkway (class II)

Figure 3.1.4-3 shows the bikeway system proposed under the Southwest Area Plan in the future. A comprehensive citywide Bikeway Plan is under preparation by the Department of Transit and Parking, which will be available in draft form in October 1993.

**Traffic Volumes and Levels of Service**

**Average Daily Traffic Volumes:** Average daily traffic (ADT) counts using machine traffic counters were obtained from the City of Santa Rosa's publication, "Current Traffic Volumes," (May 3, 1993), and Sonoma County's "Traffic Volumes" (see Figure 3.1.4-4). Counts have been rounded to the nearest hundred. The highest volumes are on US 101 and Highway 12. High volume city streets include Stony Point Road, Sebastopol Road, the eastern portion of Hearn Avenue, and Dutton...
SOUTHWEST AREA PLAN

INFRASTRUCTURE

PARKS, RECREATION & BIKEWAYS PLAN

- Existing Parks
- Open Space
- Existing & Proposed Schools
- Community Park
- Neighborhood Parks
- Community Commons
- Neighborhood Commons
- Bike Path - Class I
- Bike Lane - Class II
- Bike Route - Class III

Creeks
Area Plan Boundary

FIGURE 3.1.4-3

February, 1994
DEPARTMENT OF COMMUNITY DEVELOPMENT
Avenue north of Barham (all above 10,000). Several other streets (West Avenue, Barham Avenue, Olive Street) have relatively high traffic volumes. Typically, for a street to maintain its residential character, traffic volumes of no more than 1,000 to 3,000 per day are desirable. While higher volumes do not necessarily tax the capacity of the street, they do create the impression to residents that the street is no longer primarily local in character.

**PM Peak Traffic Flows:** Afternoon peak hour traffic flows are shown in Figure 3.1.4-5. Counts were conducted for this EIR in June 1993, prior to schools closing for the summer. The figure shows directional counts, in contrast to the daily (24 hour) counts (identified in Figure 3.1.4-4), which are totals for both directions. A PM peak hour of 4:30 to 5:30 PM was selected for purposes of modelling the existing and future traffic flows, since this is generally the hour for highest traffic volumes.

As might be expected, traffic flows are not always balanced in both directions, nor does the peak 60 minutes of traffic always occur during the same period at every intersection. For example, the heavy northbound traffic along Stony Point Road is probably there in an attempt to avoid congestion along US 101, which becomes congested between 4-6 PM. Traffic on US 101 northbound often is stop-and-go from Todd Road to Highway 12, and sometimes through downtown Santa Rosa as well. Friday congestion often lasts longer due to recreational traffic headed for the north coastal areas of the state.

**Intersection and Corridor Levels of Service:** Intersection traffic counts were performed for this study in June 1993. The intersections were counted continuously from 4 to 6 PM on weekdays (except Fridays). The highest volume in any continuous 60 minute period was used for analysis purposes. The PM peak traffic volumes, along with intersection lane configuration ("geometrics") and signal timing information were used to compute the intersection level of service (LOS).

The level of service on urban streets is generally governed by the level of service of the intersections along the street. The City's General Plan adopts corridor level of service as the traffic criteria, which is in turn a function of delay at intersections along with mid-block running speeds. Intersection levels of service based on counts in this study are shown in Figure 3.1.4-6. There are three different analysis techniques used to compute level of service in this figure, depending upon the traffic control used at these different types of intersections:
3.1.4 Traffic and Circulation

- Signalized
- Unsignalized (two-way stop control and all-way stop control)
- All-way stop control

All computations are based upon the 1985 Highway Capacity Manual (HCM) and proposed chapter updates. The reader is cautioned that the level of service computed for partial STOP (one or two way) controlled intersections is not directly comparable to the same letter level of service with different control (e.g., a signalized intersection operating at LOS "C" does not necessarily have the same perceived level of service to the user as does an unsignalized intersection operating at LOS "C"). The reason for this is that level of service is measured differently. For example, with two-way stop control, the LOS is based upon how much unused, or "reserve", capacity exists for certain vehicle movements at the intersection. For signalized intersections, it is based upon the average delay to all vehicles passing through the intersection.

Tables 3.1.4-1, -2, and -3 provide an interpretation of the level of service results. All of the techniques share a common feature: they portray the estimated LOS in terms of a letter "grade," which ranges from "A" (no delay/excellent conditions) to "F" (major delays/poorest conditions). For 2-way stop controlled intersections, level of service is shown for each major stopped approached. When left and right turns share the same approach lane, only a single arrow representing the level of service for both turning movements is shown.

Table 3.1.4-4 and Figure 3.1.4-6 shows that intersection levels of service are mostly in the "B" or "C" range on Stony Point Road, "E" or "F" along Highway 12, and vary considerably at other locations. Santa Rosa bases its traffic LOS standard on arterial (corridor) level of service, using LOS "D" as the standard. This standard is based upon traffic movement along a corridor, which may include several signalized intersections. Arterial (corridor) level of service is defined in terms of average travel speed of all through vehicles on the arterial. It is strongly influenced by the number of signals per mile and the average intersection delay.

The draft 1993 update of the Sonoma County Congestion Management Program (June 30, 1993) indicates that peak hour traffic conditions on US 101 from Todd Road to Mendocino Avenue are LOS "F" based on measured travel speeds. Highway 12 experiences better peak LOS: "C" between Stony Point Road and US 101, and "B" between Llano Road and Stony Point Road.
### TABLE 3.1.4-1

Level of Service Definitions - Signalized Intersection

<table>
<thead>
<tr>
<th>Level of Services</th>
<th>Delay (secs.)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤5.00</td>
<td>Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.</td>
</tr>
<tr>
<td>B</td>
<td>5.1 - 15.0</td>
<td>Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.</td>
</tr>
<tr>
<td>C</td>
<td>5.1 - 25.0</td>
<td>Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.</td>
</tr>
<tr>
<td>D</td>
<td>25.1 - 40.0</td>
<td>Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.</td>
</tr>
<tr>
<td>E</td>
<td>40.1 - 60.0</td>
<td>Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection.</td>
</tr>
<tr>
<td>F</td>
<td>≥60.0</td>
<td>Forced Flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.</td>
</tr>
</tbody>
</table>

### TABLE 3.1.4-2a

**Level of Service Definitions - Two-Way Stop Controlled Intersection**

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Expected Delay on minor Street*</th>
<th>Reserve Capacity (Vehicles/Hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Little or no delay</td>
<td>&gt;400</td>
</tr>
<tr>
<td>B</td>
<td>Short traffic delay</td>
<td>300-399</td>
</tr>
<tr>
<td>C</td>
<td>Average traffic delays</td>
<td>200-299</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>100-199</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>0-99</td>
</tr>
<tr>
<td>F</td>
<td>Extreme delays potentially affecting other traffic movements in the intersection</td>
<td>≤ 0</td>
</tr>
</tbody>
</table>

* There is no adopted method for quantifying future delay at intersections that are partially stop controlled. These represent subjective judgments.


### TABLE 3.1.4-2b

**Level of Service Definitions for All-Way Stop Sign Controlled Intersections**

<table>
<thead>
<tr>
<th>LOS</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0-4.9</td>
</tr>
<tr>
<td>B</td>
<td>5-9.9</td>
</tr>
<tr>
<td>C</td>
<td>10-19.9</td>
</tr>
<tr>
<td>D</td>
<td>20-29.9</td>
</tr>
<tr>
<td>E</td>
<td>30-45</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 45</td>
</tr>
</tbody>
</table>

### TABLE 3.1.4-3

**Level of Service Definitions for Urban/Suburban Arterials (HCM Chapter 11)**

**Speeds in MPH**  
(figures indicate average speeds, in MPH)

<table>
<thead>
<tr>
<th>LOS</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≥ 35</td>
<td>≥ 30</td>
<td>≥ 25</td>
</tr>
<tr>
<td>B</td>
<td>28-34.9</td>
<td>24-29.9</td>
<td>19-24.9</td>
</tr>
<tr>
<td>C</td>
<td>22-27.9</td>
<td>18-23.9</td>
<td>13-18.9</td>
</tr>
<tr>
<td>D</td>
<td>17-21.9</td>
<td>14-17.9</td>
<td>9-12.9</td>
</tr>
<tr>
<td>E</td>
<td>13-16.9</td>
<td>10-13.9</td>
<td>7-8.9</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 13</td>
<td>&lt; 10</td>
<td>&lt; 7</td>
</tr>
</tbody>
</table>


**NOTE:** Street types are based on the degree of access control, speed limits, the presence of parking, and the posted speed limits. Type I (suburban) streets typically have widely spaced driveways, posted speed limits of 35-45 MPH, turn lane channelization, and no parking. Type II arterials typically have speed limits of 30-40 MPH, partial control of access from abutting properties; some parking; 4-8 signals per mile; and little pedestrian traffic. Type I arterials typically have speed limits of 40-45 MPH, more access control than type II arterials; no parking; only one to four signals per mile; and low density roadside development. See also the Appendix "B" for more information.
TABLE 3.1.4-4
Existing (1993) Intersection Traffic Levels of Service in the Southwest Area
PM Peak Hour (average delay in seconds per vehicle)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>LOS</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stony Point Road/Highway 12 (prior to construction)</td>
<td>E</td>
<td>49</td>
</tr>
<tr>
<td>Northpoint Parkway/Stony Point Road</td>
<td>B</td>
<td>7</td>
</tr>
<tr>
<td>Sebastopol Road/Stony Point Road</td>
<td>C</td>
<td>24</td>
</tr>
<tr>
<td>Hearn Avenue/Stony Point Road</td>
<td>A (left turns from Stony Point)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>E (eastbound on Hearn)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>D (westbound on Hearn)</td>
<td>*</td>
</tr>
<tr>
<td>Bellevue Avenue/Stony Point Road</td>
<td>A (southbound left turn)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>E (westbound movements)</td>
<td>*</td>
</tr>
<tr>
<td>Todd Road/Stony Point Road</td>
<td>C</td>
<td>19</td>
</tr>
<tr>
<td>S. Wright-Fulton Road/Highway 12</td>
<td>E</td>
<td>48</td>
</tr>
<tr>
<td>S. Wright Road/Sebastopol Road</td>
<td>F</td>
<td>**</td>
</tr>
<tr>
<td>Corporate Center Parkway/Sebastopol Road</td>
<td>B</td>
<td>7</td>
</tr>
<tr>
<td>Corporate Center Parkway/Northpoint Parkway</td>
<td>C</td>
<td>10</td>
</tr>
<tr>
<td>Dutton Avenue/Highway 12</td>
<td>F (southbound left from Dutton)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>F (eastbound left turn)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>A (eastbound right turn)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>E (northbound left from Dutton)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>F (westbound left)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>B (westbound right)</td>
<td>*</td>
</tr>
<tr>
<td>Dutton Avenue/Sebastopol Road</td>
<td>E</td>
<td>47</td>
</tr>
<tr>
<td>Hearn Avenue/Dutton Avenue</td>
<td>C (eastbound left)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>F (southbound left)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>A (southbound right)</td>
<td>*</td>
</tr>
<tr>
<td>Dutton Avenue/Bellevue Avenue</td>
<td>A (left turn from Bellevue)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>E (northbound moves)</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>C (southbound moves)</td>
<td>*</td>
</tr>
<tr>
<td>Hearn Avenue/Corby Avenue</td>
<td>C</td>
<td>23</td>
</tr>
<tr>
<td>Baker Avenue/Corby Avenue</td>
<td>D</td>
<td>28</td>
</tr>
</tbody>
</table>

* Unsignalized intersection. There is no method for calculating delay at these intersections.

** Oversaturated intersection (demand greater than capacity). Delay cannot be calculated.

Note: Level of service was calculated using the highest volumes counted in a 60 minute period between 4 and 6 PM.
## TABLE 3.1.4-5

*Existing (1993) Corridor Arterial Level of Service*

(Type facility in parentheses. See Table 3.1.4-3 for definitions)

<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Speed</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stony Point Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12- Hearn Ave.</td>
<td>SB</td>
<td>30.6</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>19.2</td>
<td>D</td>
</tr>
<tr>
<td>Hearn Ave - Todd Road</td>
<td>SB</td>
<td>35.5</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>31.3</td>
<td>B</td>
</tr>
<tr>
<td>Hearn Avenue (Type III)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>EB</td>
<td>16.0</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>16.0</td>
<td>C</td>
</tr>
<tr>
<td>Bellevue Avenue (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>EB</td>
<td>31.3</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>32.6</td>
<td>B</td>
</tr>
<tr>
<td>Ludwig Avenue (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Wright Road - Stony Point Road</td>
<td>EB</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Sebastopol Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright Road - Stony Point Road</td>
<td>EB</td>
<td>25.8</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>29.5</td>
<td>B</td>
</tr>
<tr>
<td>Dutton Avenue (Type II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12 - Hearn Avenue</td>
<td>SB</td>
<td>10.9</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>28.3</td>
<td>B</td>
</tr>
<tr>
<td>Duke Court - Todd Road</td>
<td>SB</td>
<td>35.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>24.8</td>
<td>B</td>
</tr>
<tr>
<td>Northpoint Parkway (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate Center Parkway - Stony Point Road</td>
<td>EB</td>
<td>33.0</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>18.2</td>
<td>D</td>
</tr>
<tr>
<td>Stony Point Road - Bellevue Avenue</td>
<td>EB</td>
<td>Future</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>Future</td>
<td>-</td>
</tr>
<tr>
<td>Corporate Center Parkway (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sebastopol Road - Northpoint Parkway</td>
<td>NB</td>
<td>24.0</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>34.0</td>
<td>B</td>
</tr>
<tr>
<td>Fulton/Wright Road (Type II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12 - Ludwig Avenue</td>
<td>NB</td>
<td>20.2</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>29.5</td>
<td>B</td>
</tr>
<tr>
<td>Todd Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liano Road - US 101</td>
<td>EB</td>
<td>34.7</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>32.0</td>
<td>B</td>
</tr>
<tr>
<td>Corby Avenue (Type III)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earle Street - Hearn Avenue</td>
<td>NB</td>
<td>21.8</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>20.9</td>
<td>B</td>
</tr>
<tr>
<td>Hearn Avenue - Bellevue Avenue</td>
<td>NB</td>
<td>22.8</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>25.0</td>
<td>A</td>
</tr>
</tbody>
</table>

* LOS calculation not possible because of intersection control (two-way stop signs).
IMPACTS AND MITIGATION MEASURES

General Analysis Process

This section documents the results of the traffic models run for the "Plan" land uses. This work has involved the following steps:  

- Converting the land use information from the Draft Area Plan into the trip generation format developed by the City's Department of Public Works. This information included the proposed Santa Rosa Marketplace project as well as the existing and proposed commercial development in Rohnert Park. Santa Rosa land use outside the Southeast and Southwest areas was based on the City's 1991 General Plan. For the areas outside the City's urban boundaries, land use came from the County's 1989 General Plan for the year 2005.

- Applying the trip generation model

- Distributing trips to destinations, using a gravity trip distribution model

- Applying a factor to convert daily trips to peak-hour factoring (i.e., conversion of daily trips to 4:30-5:30 PM trips)

- Modification of the highway network to reflect year 2010 conditions, per the City's and County's circulation elements as well as improvements proposed by Caltrans

- Assigning future trips to the future network (both ADT and PM peak)

- Calculating the PM peak hour (4:30-5:30 PM) level of service resulting from this traffic.

Description of the Model

The City of Santa Rosa's TRANPLAN traffic model was used to analyze the impacts of the project. This model initially contained 480 traffic analysis zones (TAZ). The model was modified by Dowling Associates to add 14 TAZs in the Southeast Area, for a total of 494 zones. The geographic areas covered by each of the TAZs in the Southwest Area are shown in Figure 3.1.4-7. Land use data was prepared by the City of Santa Rosa in a format compatible with the required trip generation model inputs (number of single and multi-family units, square feet of retail, etc.).

Road Improvements Included in Traffic Model

City Streets: City street improvements were based upon projects included in the Southwest Area Plan. For purposes of modeling future traffic flows, assumptions regarding the number of midblock
lanes on streets needed to be made prior to running the model. The principal improvements in the Southwest Area are shown in Figure 3.1.4-8a and - 8b, and are shown in tabular form in Table 2.2-1, Section 2, Project Description. Future weekday traffic projections are shown in Figure 3.1.4-9.

The "project," as defined for CEQA purposes, also includes the Farmers Lane Extension from Bennett Valley Road to Petaluma Hill Road, as is consistent with the "project" for the Southeast Area Plan EIR. The Highway 12 freeway was assumed to terminate at its present location at Farmers Lane/Hoen Frontage Road, although some improvements would be made to create a partial interchange there (as described in the Southeast Plan). Highway 12 was assumed to be a 4 lane expressway from Wright-Fulton Road to Llano Road, and a 2 lane arterial highway from Llano to Sebastopol.

Improvements to the two adjacent freeways (101 and 12) have also been considered in the analysis. The improvements assumed for the year 2010 are based on discussions with Caltrans. While the City's Public Works Department has proposed different plans for the freeway, the Caltrans freeway improvements were used because they establish a "worst-case" scenario for city streets. The Caltrans alternative, with fewer freeway interchanges, tends to move traffic off the freeway and onto surface streets. The traffic impacts, and mitigations, would thus be greater with this option than they would likely be with the City's alternative to the freeway. The mitigations proposed here should therefore meet all traffic needs if the City's freeway plans are selected instead. The improvements included in the traffic model results include (Figure 3.1.4-8b) includes:

**US-101**

- Six lanes with HOV lanes through Santa Rosa (2 "mixed flow" lanes and 1 HOV lane, plus one auxiliary lane for merging traffic between interchanges, in each direction). Although not determined at this time, the HOV lanes would probably be restricted to vehicles with two or more persons, and would operate during peak hours only (probably 6-9 AM and 4-6 PM).
- Existing northbound and southbound Baker Avenue ramps would be closed (both directions). The Baker Avenue bridge would be widened to 4 lanes.
- Hearn Avenue: location of existing northbound ramps are unchanged (widening is proposed within the existing right-of-way); southbound ramps are relocated to about 700' north of the existing bridge. The bridge is widened to 4 lanes (same as City's plan).
SOUTHWEST AREA PLAN

Figure 3.1.4-8b
CALTRANS PROPOSAL For INTERCHANGE MODIFICATIONS ON 101 IN SOUTH SANTA ROSA

Dowling Associates

Highway 12

- Widen Baker Ave. Bridge to 4 Lanes
- Close Exisit. Baker Ave. Ramps
- Widen Corby Ave. to 4 Lanes
- New Southbound Ramps
- Close Existing Southbound Ramps
- DMV
- Santa Rosa Ave.
- New 4 Lane Heam Bridge
- Yolanda Ave.
- Widen Ramp
- Bellevue Ave. New 4 Lane Bridge
- New Bellevue Ramps
- New Todd Bridge and Ramps
Todd Road interchange rebuilt as a partial cloverleaf ("par clo"). Entry loops are in northwest and southeast quadrants.

- Full interchange at Bellevue Avenue (same as in City’s current plans).

**Highway 12**

- No Corporate Center Parkway ramps (the City’s proposal for this partial interchange does not meet Caltrans’ desired spacing requirement of a mile between ramps). Corporate Center Parkway is extended as a short stub road north of Sebastopol Road to serve traffic from local land uses (traffic zone 480).

- Auxiliary lanes added in both directions between Stony Point and Dutton Avenue.

- Full freeway-type interchange at Highway 12 and Wright-Fulton Roads.

Caltrans has programmed the widening of US 101 to six lanes from Wilfred Avenue (Rohnert Park) to Highway 12 in Santa Rosa for the 1996/97 fiscal year. The project has been included in the *Statewide Transportation Improvement Program (STIP)*, which is a funding-constrained document (i.e., projects must be buildable within existing revenue sources). The project should be completed by 1997 or 1998. Some auxiliary lanes will be included in this project. Interchange improvements— at Hearn, Bellevue, Baker, Wright-Fulton, and Todd— are not included in this project, and funding sources for these improvements are not yet identified. Caltrans will most likely require cooperative funding of these improvements with the City, including local contribution of some or all of the cost of these improvements.

**Thresholds of Significance**

The following thresholds of significance have been used in this analysis:

For City streets, the *Santa Rosa General Plan 2010* (July 1991) sets a goal (TCS-2) of maintaining level of service of "D" or better along all major corridors during the peak hours of travel. Exceptions to meeting the standard are: the Core Area (downtown); situations where attainment of the standard would result in significant environmental degradation; situations where topography or environment impacts makes the improvement impossible; and situations where meeting the standard would ensure loss of an area’s unique character.
For freeways, the Sonoma County Congestion Management Authority has established a LOS "E" standard for all types of highways. Caltrans likewise has an informal standard of accepting LOS "E" during peak hours in urban areas. Consequently, the thresholds of significance are City streets where the corridor (arterial) LOS would be worse than "D"; and freeways where the LOS is worse than "E". Where the LOS was "F" in 1991 on any part of the Congestion Management Plan designated road system, that link is exempted from the level of service standards. This exemption is commonly referred to as "grandfathering."

Transportation Impacts

Impact 3.1.4-1

In the absence of mitigation measures, the project, along with cumulative traffic growth, would have a significant impact (below City standard) on the following arterial streets (see Table 3.1.4-6):

Stony Point Road, from Highway 12 to Hearn Avenue (LOS "F"), and Hearn to Todd Road southbound (LOS "E")

Sebastopol Road, from Wright Road to Stony Point Road westbound, LOS "F"

Dutton Avenue, from Highway 12 to Northpoint Parkway, LOS "E" southbound/ "F" northbound

Northpoint Parkway, from Corporate Center Parkway to Stony Point Road (LOS "E/F"), and Stony Point Road to Bellevue Avenue westbound (LOS "F")

Corporate Center Parkway, from Sebastopol Road to Northpoint Parkway southbound (LOS "F")

Wright Road, from Highway 12 to Ludwig Avenue northbound (LOS "F")

Todd Road, from Llano Road to US 101 in the westbound direction (LOS "F")

Corby Avenue, between Earle Street and Hearn Avenue (LOS "F")

This impact is significant without mitigation (S).

The discussion below provides intersection-specific details on the improvements determined to be needed modeling the effects of the project using the TRANPLAN traffic model. Because of the frequent need to refer to specific turning movements and lanes in the following discussion, the
TABLE 3.1.4-6
Future Corridor Arterial Level of Service - With Plan, No Mitigation
(Does not include intersection mitigations)

<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Speed</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stony Point Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12- Hearn Ave.</td>
<td>SB</td>
<td>2.7</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>8.0</td>
<td>F</td>
</tr>
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<td>Hearn Ave - Todd Road</td>
<td>SB</td>
<td>12.4</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>31.3</td>
<td>B</td>
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<td>Hearn Avenue (Type II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>EB</td>
<td>21.4</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>25.1</td>
<td>B</td>
</tr>
<tr>
<td>Bellevue Avenue (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>EB</td>
<td>31.3</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>32.6</td>
<td>B</td>
</tr>
<tr>
<td>Ludwig Avenue (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright Road - Stony Point Road</td>
<td>EB</td>
<td>33.3</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
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</tr>
<tr>
<td>Sebastopol Road (Type I)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>South Wright Road - Stony Point Road</td>
<td>EB</td>
<td>21.4</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>6.5</td>
<td>F</td>
</tr>
<tr>
<td>Dutton Avenue (Type II)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12 - Northpoint Parkway</td>
<td>SB</td>
<td>8.8</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>8.8</td>
<td>F</td>
</tr>
<tr>
<td>Northpoint Parkway - Todd Road</td>
<td>SB</td>
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<td>A</td>
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<td>NB</td>
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<td>A</td>
</tr>
<tr>
<td>Northpoint Parkway (Type I)</td>
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<tr>
<td>Corporate Center Parkway - Stony Point Road</td>
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<td>4.2</td>
<td>F</td>
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<tr>
<td></td>
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<td></td>
<td>WB</td>
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<td>F</td>
</tr>
<tr>
<td>Corporate Center Parkway (Type I)</td>
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<td>Sebastopol Road - Northpoint Parkway</td>
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<td>7.3</td>
<td>F</td>
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<tr>
<td></td>
<td>NB</td>
<td>14.4</td>
<td>E</td>
</tr>
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<td>Fulton/Wright Road (Type II)</td>
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<td></td>
</tr>
<tr>
<td>Highway 12 - Ludwig Avenue</td>
<td>SB</td>
<td>6.4</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>12.6</td>
<td>E</td>
</tr>
<tr>
<td>Todd Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Llano Road - US 101</td>
<td>EB</td>
<td>17.6</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>10.7</td>
<td>F</td>
</tr>
<tr>
<td>Corby Avenue (Type III)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earle Street - Hearn Avenue</td>
<td>SB</td>
<td>14.8</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>3.9</td>
<td>F</td>
</tr>
<tr>
<td>Hearn Avenue - Bellevue Avenue</td>
<td>SB</td>
<td>13.6</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>21.3</td>
<td>B</td>
</tr>
</tbody>
</table>

* LOS calculation not possible because intersection is two-way STOP controlled, for which no delay calculation method exists.
following abbreviations have been used. Northbound, southbound, eastbound, and westbound are referred to as NB, SB, EB and WB, respectively. Left, through ("straight") and right movements are referred to as L, T and R. A northbound left turn lane is thus referred to as the "NBL lane"; where a lane is shared by more than one movement, a slash is used (e.g., T/L indicates "thru/left turns permitted" from the lane). Intersection average delay per vehicle is shown in parentheses, in seconds per vehicle. The existing intersection lane configurations (geometrics) are shown in Figure 3.1.4-10, along with the proposed additional lanes as mitigation. The projected afternoon (4:30-5:30 PM) traffic volumes are shown in Figure 3.1.4-11.

Mitigation Measure 3.1.4-1 See Table 3.1.4-7 for intersection LOS with and without mitigation. See Table 3.1.4-8 for mitigated LOS, and Figure 3.1.4-10 for intersection diagrams.

(a) Northpoint Parkway/Stony Point Road: Add NBT, SBT and SBL, EBT lanes. Convert existing EBR lane to shared thru/right movements. Two WBT lanes on Northpoint Parkway extension. This improves the LOS from "F" with the existing lane configuration, to "D" (39 seconds).

(b) Sebastopol Road/Stony Point Road: Add NBT, WBR, SBT, SBR, and EBL lanes to this intersection. There is room at this intersection (with right of way acquisition) to make this substantial improvement to the intersection. This improves the LOS from "F" (unmitigated) to "E" (42 seconds)-- actually very close to the "D/E" range threshold (40 seconds).

(c) Hearn Avenue/Stony Point Road: Signalize the present two-way stop intersection. Add NBL, NBT, NBR, WBL, SBL, SBT/R lanes to the intersection. This makes a substantial improvement in the intersection LOS, from "F" to "C" (15 seconds).

(d) Bellevue Avenue/Stony Point Road: Convert traffic control from existing two-way stop to signalized. Add NBL, NBT, WBT/L, WBR, SBL, SBT lanes; to the Ludwig Avenue approach (with realignment of the intersection), add an EBR lane. This improves the intersection LOS from "F" to "E" (42 seconds).

(e) Highway 12/Dutton Avenue Eastbound ramps: Signalize. No change to existing lane configuration. Improves the sidestreet LOS from "F" to "B" (7 seconds).

(f) Highway 12/Dutton Avenue Westbound ramps: Signalize. No change to existing lane configuration, although existing NBL turn pocket may require lengthening. Improves LOS from "F" to "C" (18 seconds).

(g) Dutton Avenue/Sebastopol Road: Add NBT, WBT, SBT/R, EBL, and EBT lanes to this intersection. There are heavy turning volumes to and from Highway 12 at this location. This improvement causes LOS to go from "F" to "D/E" (40 seconds).
1. Stony Point Rd. and Highway 12

2. Stony Point / Highway 12 Interchange

3. North Point Pkwy. / Stony Point Rd.

4. Sebastopol Rd. / Stony Point Rd.

5. Hearn Ave. / Stony Point Rd.

6. Bellevue Ave. / Stony Point Rd.

7. Highway 12 / Dutton Ave. EB Ramps

8. Highway 12 / Dutton Ave. WB Ramps

SOUTHWEST AREA PLAN

Dowling Associates

Figure 3.1.4 - 10a
EXISTING & MITIGATED INTERSECTION LANE GEOMETRICS

Not to Scale


11. Dutton Ave. / Bellevue Ave.


13. Todd Rd. / Stony Point Rd.

14. Wright Rd. / Sebastopol Rd.

15. Hwy. 12 / S. Wright–Fulton Rd.


SOUTHWEST AREA PLAN

Dowling Associates

Figure 3.1.4 - 10b
EXISTING & MITIGATED INTERSECTION LANE GEOMETRICS
17. Corporate Center Pkwy. / Sebastopol Rd.

* No Shared Left Turn Lane in Future

18. Corporate Center Pkwy. / North Point Pkwy.

Existing All-Way Stop (Flashing Signal) Future Signalization


20. Bellevue / 101 SB Ramps (Moorland)

Existing All-Way Stop Future Signalization

21. Bellevue Ave. / 101 NB Ramps at Sant Rosa


SOUTHWEST AREA PLAN
Dowling Associates

→ Existing Lane
← Proposed Lane

Not to Scale

Figure 3.1.4 - 10c EXISTING & MITIGATED INTERSECTION LANE GEOMETRICS
### TABLE 3.1.4-6a

**TURN LANE LENGTH REQUIREMENTS FOR MITIGATIONS**

(Intersection numbers correspond to Figure 3.1.4-10)

(All dimensions in feet; one vehicle = 25 feet)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Stopped Queue Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
</tr>
<tr>
<td>3. Northpoint Pkwy/Stony Point Road</td>
<td></td>
</tr>
<tr>
<td>southbound left</td>
<td>60</td>
</tr>
<tr>
<td>4. Sebastopol Rd/Stony Point Rd</td>
<td></td>
</tr>
<tr>
<td>eastbound right</td>
<td>350</td>
</tr>
<tr>
<td>southbound right</td>
<td>175</td>
</tr>
<tr>
<td>eastbound left</td>
<td>300</td>
</tr>
<tr>
<td>5. Hearn Ave/Stony Point Rd.</td>
<td></td>
</tr>
<tr>
<td>northbound left</td>
<td>60</td>
</tr>
<tr>
<td>northbound right</td>
<td>150</td>
</tr>
<tr>
<td>westbound left</td>
<td>200</td>
</tr>
<tr>
<td>southbound left</td>
<td>75</td>
</tr>
<tr>
<td>6. Bellevue Ave/Stony Pt. Road</td>
<td></td>
</tr>
<tr>
<td>northbound left</td>
<td>150</td>
</tr>
<tr>
<td>westbound left</td>
<td>325</td>
</tr>
<tr>
<td>southbound left</td>
<td>450</td>
</tr>
<tr>
<td>eastbound right</td>
<td>100</td>
</tr>
<tr>
<td>9. Dutton Ave/Sebastopol Rd.</td>
<td></td>
</tr>
<tr>
<td>eastbound left</td>
<td>750</td>
</tr>
<tr>
<td>westbound left</td>
<td>250</td>
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<tr>
<td>eastbound left</td>
<td>200</td>
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<tr>
<td>11. Dutton Ave/Bellevue Ave</td>
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<tr>
<td>northbound left</td>
<td>125</td>
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<td>eastbound left</td>
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<td>525</td>
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<td>Intersection</td>
<td>Stopped Queue Length</td>
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<tr>
<td>--------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td>mean</td>
</tr>
<tr>
<td>13. Todd Rd/Stony Point Rd.</td>
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<td>75</td>
</tr>
<tr>
<td>southbound left</td>
<td>60</td>
</tr>
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<td>14. Wright Rd/Sebastopol Rd</td>
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<td>westbound right*</td>
<td>190</td>
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<tr>
<td>southbound left</td>
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<tr>
<td>16. Wright-Fulton Rd./Hwy 12 EB ramp</td>
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</tr>
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<tr>
<td>northbound right</td>
<td>100</td>
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<tr>
<td>Wright-Fulton Rd/Hwy 12 WB ramps</td>
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<tr>
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<td>325</td>
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<td>17. Corporate Center Pkwy/ Sebastopol Rd</td>
<td></td>
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<tr>
<td>westbound left</td>
<td>60</td>
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<tr>
<td>southbound left</td>
<td>60</td>
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<td>eastbound left</td>
<td>60</td>
</tr>
<tr>
<td>northbound right</td>
<td>150</td>
</tr>
<tr>
<td>southbound left</td>
<td>275</td>
</tr>
<tr>
<td>20. Bellevue Ave/101 SB ramps (Moorland Ave)</td>
<td></td>
</tr>
<tr>
<td>southbound left*</td>
<td>90</td>
</tr>
<tr>
<td>21. Bellevue Ave/ 101 NB ramps (Santa Rosa Ave)</td>
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</tr>
<tr>
<td>northbound left*</td>
<td>265</td>
</tr>
<tr>
<td>southbound right</td>
<td>60</td>
</tr>
<tr>
<td>eastbound left*</td>
<td>390</td>
</tr>
<tr>
<td>22. Bellevue Overcrossing 101/Santa Rosa Ave</td>
<td></td>
</tr>
<tr>
<td>northbound left*</td>
<td>540</td>
</tr>
<tr>
<td>southbound right*</td>
<td>800</td>
</tr>
<tr>
<td>eastbound left*</td>
<td>215</td>
</tr>
<tr>
<td>Intersection</td>
<td>Stopped Queue Length</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td>mean</td>
</tr>
<tr>
<td>23. Dutton Ave/Northpoint Pkwy</td>
<td></td>
</tr>
<tr>
<td>Northpoint left turn (NW approach)</td>
<td>60</td>
</tr>
<tr>
<td>Dutton Avenue left (NE approach)</td>
<td>60</td>
</tr>
<tr>
<td>Dutton Avenue right (SE approach)</td>
<td>100</td>
</tr>
<tr>
<td>Left turn (SW approach)</td>
<td>60</td>
</tr>
</tbody>
</table>

*Dual (double) turn lanes; the length indicated represents the length of each of the two lanes.

Intersections are not numbered consecutively because intersections not requiring mitigation are not listed.
TABLE 3.1.4-7
Future Intersection Levels of Service, with Plan - With and Without Mitigation
(average delay per vehicle, in seconds)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>without mitigations</th>
<th>with mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northpoint Pkwy/Stony Point Road</td>
<td>F (*)</td>
<td>D (39)</td>
</tr>
<tr>
<td>Sebastopol Rd/Stony Point Rd</td>
<td>F (*)</td>
<td>E (42)</td>
</tr>
<tr>
<td>Hearn Ave/Stony Point Rd.</td>
<td>F (#)</td>
<td>C (15)</td>
</tr>
<tr>
<td>Bellevue Ave/Stony Pt. Road</td>
<td>F (#)</td>
<td>E (42)</td>
</tr>
<tr>
<td>Todd Rd/Stony Point Rd.</td>
<td>F (*)</td>
<td>C (20)</td>
</tr>
<tr>
<td>Wright-Fulton Rd./Hwy 12 EB ramp</td>
<td>F (*)</td>
<td>C (22)</td>
</tr>
<tr>
<td>Wright Rd/Sebastopol Rd</td>
<td>F (*)</td>
<td>B (14)</td>
</tr>
<tr>
<td>Corporate Center Pkwy/ Sebastopol Rd</td>
<td>F (103)</td>
<td>B (15)</td>
</tr>
<tr>
<td>Corporate Center Pkwy/Northpoint Pkwy</td>
<td>F ** (51)</td>
<td>A (3)</td>
</tr>
<tr>
<td>Dutton Ave/Hwy 12 EB ramps</td>
<td>F (#)</td>
<td>B (7)</td>
</tr>
<tr>
<td>Dutton Ave/Hwy 12 WB ramps</td>
<td>F (#)</td>
<td>C (18)</td>
</tr>
<tr>
<td>Dutton Ave/Sebastopol Rd.</td>
<td>F (*)</td>
<td>D/E (40)</td>
</tr>
<tr>
<td>Hearn Ave/Dutton Ave.</td>
<td>F (#)</td>
<td>D (26)</td>
</tr>
<tr>
<td>Dutton Ave/Bellevue Ave</td>
<td>F (#)</td>
<td>D (36)</td>
</tr>
<tr>
<td>Hearn Ave/Corby Ave</td>
<td>F (*)</td>
<td>D (39)</td>
</tr>
<tr>
<td>Baker Ave/Corby Ave</td>
<td>F (*)</td>
<td>C (24)</td>
</tr>
<tr>
<td>Stony Point Rd/ Hwy 12 EB ramps</td>
<td>C (25)</td>
<td>C (17)</td>
</tr>
<tr>
<td>Stony Point Rd/ Hwy 12 WB ramps</td>
<td>B (11)</td>
<td>B (5)</td>
</tr>
<tr>
<td>Bellevue Ave/101 SB ramps (Moorland Ave)</td>
<td>F (88)</td>
<td>B (10)</td>
</tr>
<tr>
<td>Bellevue Ave/ 101 NB ramps (Santa Rosa Ave)</td>
<td>F (*)</td>
<td>D (29)</td>
</tr>
<tr>
<td>Bellevue Overcrossing 101/Santa Rosa Ave</td>
<td>F (*)</td>
<td>D (34)</td>
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<tr>
<td>Dutton Ave/Northpoint Pkwy</td>
<td>B (12)</td>
<td>B (12)</td>
</tr>
<tr>
<td>Wright-Fulton Rd/Hwy 12 WB ramps</td>
<td>D (37)</td>
<td>D (30)</td>
</tr>
</tbody>
</table>

* Delay cannot be calculated due to oversaturated conditions (demand exceeds capacity).
** Level of service calculated is for all-way stop condition (existing intersection control).
# Two-way stop control. No calculation of delay possible.
<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Unmitigated Speed</th>
<th>Mitigated Speed</th>
<th>LOS</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stony Point Road (Type I)</td>
<td>SB</td>
<td>2.7</td>
<td>17.9</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>Highway 12 - Hearn Ave.</td>
<td>NB</td>
<td>8.0</td>
<td>18.0</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>Hearn Ave - Todd Road</td>
<td>SB</td>
<td>12.4</td>
<td>31.5</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>31.3</td>
<td>23.1</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Hearn Avenue (Type II)</td>
<td>EB</td>
<td>21.4</td>
<td>21.0</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>WB</td>
<td>25.1</td>
<td>23.6</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Bellevue Avenue (Type I)</td>
<td>EB</td>
<td>31.3</td>
<td>23.8</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Stony Point Road - US 101</td>
<td>WB</td>
<td>32.6</td>
<td>23.5</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Ludwig Avenue (Type I)</td>
<td>EB</td>
<td>33.3</td>
<td>20.7</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>South Wright Road - Stony Point Road</td>
<td>WB</td>
<td>36.7</td>
<td>36.7</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Sebastopol Road (Type I)</td>
<td>EB</td>
<td>21.4</td>
<td>28.6</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>Wright Road - Stony Point Road</td>
<td>WB</td>
<td>6.5</td>
<td>22.4</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>Dutton Avenue (Type II)</td>
<td>SB</td>
<td>8.8</td>
<td>21.4</td>
<td>E</td>
<td>C</td>
</tr>
<tr>
<td>Highway 12 - Northpoint Parkway</td>
<td>NB</td>
<td>8.8</td>
<td>20.5</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>Northpoint Parkway - Todd Road</td>
<td>SB</td>
<td>35.0</td>
<td>24.8</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>35.0</td>
<td>24.8</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Northpoint Parkway (Type I)</td>
<td>EB</td>
<td>4.2</td>
<td>33.7</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Corporate Center Parkway - Stony Point Road</td>
<td>WB</td>
<td>15.0</td>
<td>38.0</td>
<td>E</td>
<td>A</td>
</tr>
<tr>
<td>Stony Point Road - Bellevue Avenue</td>
<td>EB</td>
<td>35.0</td>
<td>27.4</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>10.2</td>
<td>29.1</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Corporate Center Parkway (Type I)</td>
<td>SB</td>
<td>7.3</td>
<td>33.4</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Sebastopol Road - Northpoint Parkway</td>
<td>NB</td>
<td>14.4</td>
<td>36.0</td>
<td>F</td>
<td>A</td>
</tr>
<tr>
<td>Fulton/Wright Road (Type II)</td>
<td>SB</td>
<td>6.4</td>
<td>27.2</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Highway 12 - Ludwig Avenue</td>
<td>NB</td>
<td>12.6</td>
<td>20.7</td>
<td>E</td>
<td>C</td>
</tr>
<tr>
<td>Todd Road (Type I)</td>
<td>EB</td>
<td>17.6</td>
<td>32.8</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>Llano Road - US 101</td>
<td>WB</td>
<td>10.7</td>
<td>32.5</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Corby Avenue (Type III)</td>
<td>SB</td>
<td>14.8</td>
<td>20.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>Earle Street - Hearn Avenue</td>
<td>NB</td>
<td>3.9</td>
<td>24.3</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Hearn Avenue - Bellevue Avenue</td>
<td>SB</td>
<td>13.6</td>
<td>23.3</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>21.3</td>
<td>21.6</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>

* LOS calculation not possible because of intersection control.

Note: Certain travel speeds may decrease as a result of new traffic signals, which add delay for certain intersection through movements that were not STOP-sign controlled. The signals are necessary to provide for the orderly movement of traffic and enhance safety; in some cases it appears that mitigations reduce level of service, at least for certain traffic movements.
(h) Hearn Avenue/Dutton Avenue: Signalize this presently two-way STOP controlled intersection. New approach on Dutton Extension would have a NBT/L lane, NBT, NBR lanes; Hearn would need to have added WBL, WBT, and WBR lanes; the existing southbound Dutton approach widened by adding a SBT lane, and the existing Hearn eastbound approach widened by including an EBL lane. This improves the LOS from "F" to "D" (26 seconds).

(i) Dutton Avenue/Bellevue Avenue: Signalize this two-way STOP controlled intersection. Add NBL, NBT, NBR, WBL, WBT, WBR, SBL, SB, and EBL and EBT lanes. This improves intersection LOS from "F" to "D" (36 seconds).

(j) Hearn Avenue/Corby Avenue: Add NBL, WBT, WBR, SBL, SB, EBL, and EBT lanes. This improves the LOS from "F" to "D" (39 seconds).

(k) Todd Road/Stony Point Road: The County of Sonoma has begun a project to improve this intersection by signalizing it, adding a WBL turn lane (on Todd Road), and adding shoulders and lane channelization. The additional lanes required after this improvement would be: NBL, NBT, SBL and SB lanes. This improves the LOS from "F" to "C" (20 seconds).

(l) Wright Road/Sebastopol Road: Signalize this presently all-way STOP controlled intersection. Add a NBT, two WBR, a SBL, and a SB lane to the intersection. This improves the LOS from "F" to "B" (14 seconds).

(m) Highway 12/Wright-Fulton Roads: Construct full freeway type interchange, with signalized ramp junctions. The exact configuration of the ramps will need to be determined in order to minimize environmental impacts and cost. Tentatively, a diamond type interchange has been used for analysis, which would have PM peak LOS of C (22 seconds) in the eastbound direction, and "D" (30 seconds) in the westbound direction. This project is part of the Southwest Area Plan, so is actually not a mitigation (it was originally proposed in 1958).

(n) Corporate Center Parkway/Sebastopol Road: Add a NBT/L, WBL, and EBT lanes to the existing streets. Add a southbound approach to serve land development north of this intersection, which would have a SB and SBL lane. Intersection LOS would be "E" (42 seconds) in the future, compared to "F" without mitigations.

(o) Corporate Center Parkway/Northpoint Parkway: Convert existing flashing red (effectively, all way STOP) operation to normal signal operation. No additional physical improvements required. Future LOS improves from "F" to "A" (3 seconds).

(p) Baker Avenue/Corby Avenue: Add NBR and SBL lanes to accommodate increased traffic travelling to and from US 101 (and the east side of the freeway). Signalize intersection and provide appropriate turn lane lengths. This improves LOS from "F" to "C" (24 seconds).

(q) Bellevue Avenue Interchange at US 101: This interchange is included in the Southwest and Southeast plans, so is not actually a mitigation. By providing the intersection lane configurations shown in Figure 3.1.4-10, the future intersection LOS will be "D" or better during peak hours.
(r) Northpoint Parkway/Dutton Avenue: This future intersection warrants signalization and should have the intersection geometrics shown in Figure 3.1.4-10c.

The above mitigation measures would reduce street corridor impacts to insignificant levels. (I)

The mitigations are based upon the Caltrans proposal for US 101, and proposed mitigations for City streets may differ if US 101 is different than what is proposed.

Impact 3.1.4-2

The project, along with cumulative traffic growth, would have a significant impact (LOS "E" or worse) on US 101 from Wilfred Avenue to Highway 12. The LOS is projected at "F" in this area. Average travel speeds would be in the 9-25 MPH range during the PM peak hour. This is an unavoidable significant impact (S).

The level of service on the freeway mainline has been analyzed for the year 2010 in the area of the project. This is shown in Table 3.1.4-9. The table shows that traffic conditions along Highway 12 would generally be good, even during peak hours. Traffic LOS on 101 would be "F" from the Todd Road to the Highway 12 interchange, which is somewhat worse than the existing (1993) traffic conditions. This worsening, despite freeway widening, occurs for several reasons. The main reasons are cumulative traffic growth, and the assumption that the new freeway mainline lanes would be reserved for buses and carpools. In order to promote use of these high occupancy vehicles (HOV), these lanes are deliberately intended to operate at less than capacity (so that they can provide faster speeds than the other lanes). This represents a trade-off between providing an incentive for using HOV's, and increasing the speed of all vehicles. The scenario portrayed in the table represents a worst-case situation for EIR purposes.

The development of the Southwest Area would be only one of several factors contributing to traffic congestion along US 101. As noted below, the Project proposes to reduce the amount of traffic generated compared with the City's present General Plan. Congested traffic conditions on US 101 would be a result of the cumulative impacts of new land use development in Santa Rosa, adjacent cities (e.g., development of large retail centers in west Rohnert Park), and unincorporated areas of Sonoma County.
<table>
<thead>
<tr>
<th>Route</th>
<th>Segment</th>
<th>Demand</th>
<th>Capacity*</th>
<th>LOS</th>
<th>Speed***</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Todd-Bellevue</td>
<td>NB</td>
<td>4,900</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,400</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td>101</td>
<td>Bellevue-Hearn (Yolanda)</td>
<td>NB</td>
<td>4,300</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,100</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td>101</td>
<td>Hearn-Highway 12</td>
<td>NB</td>
<td>4,700</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,400</td>
<td>4,850</td>
<td>F</td>
</tr>
<tr>
<td>12</td>
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<td>2,200</td>
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<td></td>
<td></td>
<td>WB</td>
<td>1,800</td>
<td>4,350</td>
<td>B</td>
</tr>
<tr>
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<td>Stony Point Road/Wright-Fulton</td>
<td>EB</td>
<td>1,000</td>
<td>3,600</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB</td>
<td>1,700</td>
<td>3,600</td>
<td>B</td>
</tr>
</tbody>
</table>

**Notes:**

* Capacity is based upon the physical (LOS "E/F") capacity. Under this option, HOV lanes on US 101 would be operative during peak hours in both directions.

** Under Caltrans alternative, the existing Santa Rosa Avenue ramps (northbound off/southbound on) are closed.

*** Speed is in MPH and is output directly from TRANPLAN model. Level of service is based upon speed, using 60 MPH as the design speed for both US 101 and Highway 12. See Table 3-1, *Highway Capacity Manual*, Transportation Research Board SR-209, 1985.
Mitigation Measure 3.1.4-2 (S)

The cumulative impact of traffic volumes would cause the 101 freeway to operate at below the level of service standard during the peak hours. Possible mitigation options include:

- HOV lane enforced (restriction) only in northbound direction during the PM peak, rather than both directions.
- No HOV lane on US 101 (added lanes open to all traffic).
- Widening of 101 to 8 basic lanes in critical areas (Todd to Highway 12).

Because there is presently no commitment by Caltrans to implement either of these mitigation measures, and because of their uncertainty, impact 3.1.4-2 as described above would remain significant and unavoidable. (S)

Impact 3.1.4-3

The demand for transit trips in the area would increase. Existing transit services in the area have excess capacity, so the extent of the impact would depend upon how much service were expanded to serve new demand. The City's Transit and Parking Department has expressed concern that it may not be able to expand service unless additional funding is found. This is not a significant impact (I).

Mitigation Measure 3.1.4-3 (I)

The City's Long Range Transit Plan (June 1990) provides for an array of bus service improvements based on public input and technical analysis:

- additional routes and route extension building on the current system;
- additional weekday and Saturday night service until 11 PM;
- new commute-oriented bus service during weekday peak hours only;
- additional Sunday service (an hour earlier and later);
- expansion of transportation systems management programs citywide.

The plan proposes expansion areas in the quadrant bounded by S. Wright Road, Ludwig Avenue, and the existing Route 20; and the area bounded by Hearn, South Dutton Avenue, Bellevue Avenue, and Corby Avenue. These are identified as long term service need areas. The plan notes that, "beyond the baseline system, additional revenue sources are needed to implement most of the short term improvements and all of the long term improvements." (page 2-13). However, the added population and retail activity in the Southwest Area will contribute sales tax revenues (transportation development act money) that will provide operating support to CityBus.
The Northwestern Pacific Railroad right-of-way provides a significant opportunity for providing a high-capacity, high-quality transit service in the Southwest Area. The Sonoma County Transportation Authority is currently studying various options for using the NWP for transit purposes in the future. The Southwest Area Plan notes that the NWP tracks and Bellevue Avenue would be a logical location for a transit station. In addition, another transit station site will probably be required somewhere between Hearn and Baker Avenues.

Even if no rail transit is operated on the NWP until early in the next decade, the sites could be used as bus transfer centers and/or park-and-ride lots for commuters on Highway 101. Early identification of sites would enhance the facilities' compatibility with their neighbors, and denser uses should be considered around these future station locations.

The traffic modeling takes into account transit ridership through appropriate reductions to the vehicle trip generation rates. This simple technique is appropriate for Santa Rosa, since transit is a small percentage of work trips made within Sonoma County. Transit modelling done for the Sonoma County General Plan (1989) indicated that even with substantial upgrading of the existing transit network (about a 40 percent increase in bus frequency, and new express routes) that the daily work trip mode split would still only be about 2.8%, and for non-work trips, the weekday mode share carried by transit would be about 0.5%.

However, if the transit system (network) were substantially improved, then the vehicle trip generation could be reduced further than what is assumed in the modelling work. Sonoma County Transit (SCT) would probably increase service frequencies in the future, as demand warrants and as funding permits. There has also been discussion of providing express (commuter oriented) bus service along Stony Point Road in the future, at least as far south as Rohnert Park, and possibly to Petaluma.

Other measures to promote transit service could include:

- Bus turnouts along major (arterial) streets with existing/potential bus service in the Southwest Area. Bus stop locations should be coordinated with CityBus and SCT staff.

- Reasonable and justified reductions in parking requirements where an aggressive transit or TSM program is agreed to by the developer.

- Implementation of the City's Long Range Transit Plan.

- Encourage use of shared parking facilities where multi-use sites are developed.

- Encourage site plans with buildings located close to streets (and thus bus stops), rather than traditional developments where buildings are set back many hundreds of feet and surrounding by a "sea" of parking.

- Encourage site plans that provide clear and convenient pedestrian access between major activity centers and nearby bus stops. Discourage artificial barriers to pedestrian circulation, such as walls or fences. These barriers inhibit both walking and transit travel.
Impact 3.1.4-4

The project would increase vehicular traffic, including use of local and collector streets in developed portions of the Southwest area. This is a potentially significant impact. (PS)

Mitigation Measure 3.1.4-4 (I)

Several techniques are available for improving the residential street environment.

Street Design. Incorporation of good street designs is by far the best way to reduce traffic speeds on local streets and improve the residential environment. This can be done by avoiding long, straight streets that encourage high speeds; liberal use of "T" intersections (to reduce speeds and the number of conflicts at intersections); and providing a street system that encourages people to use collector and arterial streets, rather than local streets, for longer trips. Other techniques (usually involving a traffic control device, or road undulations or "chokers") can be used to mitigate problems on existing streets, but are often not as effective. Good transportation planning makes it unattractive for pass-through traffic to enter a neighborhood.

Neighborhood Traffic Management. Techniques that can be used on both existing and proposed streets include:

- Traffic chokers at intersections. These create a "bulbed" effect at intersections, and so reduces pedestrian crossing distance of streets, and tend to reduce vehicle speeds. These should be used primarily on residential and minor collector streets.

- Speed humps, or "undulations." These differ from more traditional "speed bumps" in that they have a longer cross-section (typically 12-14 feet). They have been proven to be more effective in slowing traffic than speed bumps, and also create less noise. Modest reductions in average speed can sometimes be achieved with speed humps, typically 5 MPH. Advanced signage should be placed in conjunction with the humps. The cross-section length can be adjusted to accommodate different speeds of traffic (longer cross-sections for higher speeds).

The use of all-way STOP signs for speed control should only be used as a last resort. Numerous studies have indicated that these devices are ineffective at controlling overall speeds, and may actually cause people to speed up between intersections (although they reduce speeds near the intersection). Where not required to stop by traffic, studies have shown that 40-60% of all vehicles will only come to a rolling stop (below 5 MPH), and 20-40% will pass through at higher speeds. STOP signs should be used where warranted by high traffic volumes, or where sight lines are restricted enough to create a potential safety hazard.

Street connections should be provided between adjacent subdivisions wherever topography permits and the connection would not encourage "cut through" traffic in one (or both) subdivisions. Street connections should allow local, short distance trips (such as between home and school) to avoid use
of busy arterial streets, thereby reducing vehicle-miles of travel and congestion. They also provide shorter paths for pedestrians and cyclists, and also facilitate emergency vehicle access.

**Impact 3.1.4-5**

The project would increase the demand for non-motorized transportation in the area, i.e., bicycle and pedestrian travel. This is not a significant impact (I).

The major pedestrian and bicycle attractions in the Southwest would be:
- Public parks located throughout the area
- Public schools
- Shopping/commercial areas, such as the Sebastopol Road shopping district and proposed new community/neighborhood centers

**Mitigation Measure 3.1.4-5 (I)**

The pedestrian needs have been addressed through the policies of the Area Plan including:
- A well connected internal circulation system, that, to the extent possible, minimizes pedestrian crossings of major streets
- Mixed land uses that minimize distances for daily trip activities, and thus promote walking and cycling as alternatives to the auto
- Providing sidewalks on streets

A preliminary bikeway plan has been prepared, as was shown in Figure 3.1.4-3. A bikeway plan is currently being completed by the City’s Department of Transit and Parking that will help establish the future system for the area. Proposed bikeway routes would include the Petaluma & Santa Rosa Railroad right-of-way (Joe Rodota Trail) to Sebastopol; Santa Rosa Creek bikeway; Colgan and Roseland Creek Trails; and Class II bike lanes along S. Wright Road, Corporate Center Parkway, Fresno Avenue, Stony Point Road, Dutton Avenue, Sebastopol Road, Northpoint Parkway (and extensions), and Bellevue-Ludwig Avenue. This would provided an extensive grid of bicycle routes to serve the major attractions for bicycle trips in the area.
PROPOSED PROJECTS

SETTING

Refer to the Setting discussion under the Southwest Area Plan. This discussion would relate also the individually proposed projects.

IMPACTS AND MITIGATION MEASURES

Traffic and circulation impacts of the proposed projects are included in the evaluation of traffic and circulation impacts of the Area Plan. The following discussion assesses the traffic contribution of each proposed project to the traffic total for the Area Plan, details of street and intersection design to improve circulation, parking and transit ridership.

Thresholds of Significance

The thresholds of significance for each of the proposed projects has been established using trip generation, or significant alteration to the existing or proposed circulation system of the Southwest Area. The trip generation significance thresholds were: 500 vehicle-trips per day for potentially significant, and 2,000 per day for significant. The 500 level represents the threshold at which current City policy would normally require the project applicant to prepare a traffic impact study. The 2,000 level represents a clear and substantial increase in the traffic volume surrounding the project, which, if focused on one street or a few intersections, has the potential for changing the level of service on that street. The significance levels and project trip generation are shown in Table 3.1.4-10.

Discussions of the individual projects are provided below on the following pages. A map showing the location of projects is shown in Figure 2.2-4.

The largest significant trip generators are:

#9   -   Courtside Village
#10  -   Martin Homeless Housing
#11  -   Northpoint Village
#22  -   Springfield
#29  -   Bellevue Ranch
#30  -   Air Center
TABLE 3.1.4-10

Project Average Daily Trip Generation
(Average weekday vehicle trip ends*)

<table>
<thead>
<tr>
<th>Project #</th>
<th>ADTE</th>
<th>Project #</th>
<th>ADTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>240</td>
<td>18</td>
<td>770</td>
</tr>
<tr>
<td>2</td>
<td>360</td>
<td>19</td>
<td>310</td>
</tr>
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<td>3</td>
<td>305</td>
<td>20</td>
<td>1,020</td>
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<tr>
<td>4</td>
<td>566</td>
<td>21</td>
<td>749</td>
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<tr>
<td>5</td>
<td>1,455</td>
<td>22</td>
<td>5,420</td>
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<td>6</td>
<td>388</td>
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<td>7</td>
<td>539</td>
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<td>160</td>
<td>25</td>
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</tr>
<tr>
<td>9</td>
<td>5,122</td>
<td>26</td>
<td>1,468</td>
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<tr>
<td>10</td>
<td>2,940</td>
<td>27</td>
<td>900</td>
</tr>
<tr>
<td>11</td>
<td>3,994</td>
<td>28</td>
<td>296**</td>
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<tr>
<td>12</td>
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<td>29</td>
<td>14,815</td>
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<tr>
<td>13</td>
<td>102</td>
<td>30</td>
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<td>14</td>
<td>550</td>
<td>31</td>
<td>487</td>
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<td>15</td>
<td>610</td>
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<td>1,664</td>
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<td>17</td>
<td>196</td>
<td>34</td>
<td>459</td>
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<td></td>
<td></td>
<td>35</td>
<td>868</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td>64,765</td>
</tr>
</tbody>
</table>

Source of land use data: "Southwest Santa Rosa Plan EIR" (single sheet), EIP Transmittal dated 5/18/93 and updated 7/23/93. See Table 2.3-1 in this document for a description of the land uses.

* "Trip end" refers to the beginning or ending point of a trip. Thus, every vehicle trip has two trip ends.

** Where Single Family Dwelling Unit density is ≥ 8/acre, then 8 trip ends per house was used.
These projects together account for 75% of the vehicular trip generation from the proposed projects. The trip generation of Project #10 may be adjusted downward if it appears that the economic characteristics of the residents would justify a lower trip generation rate.

*Bellevue Interchange/Infrastructure*: The proposed Bellevue interchange is likely to have a significant effect on traffic volumes and circulation in the area because it would divert traffic from the adjacent Hearn and Todd Road interchanges. In addition, the roads connecting to this interchange are intended to make the Bellevue Interchange the primary freeway gateway to the Southwest from Rohnert Park, Petaluma, and other areas to the south. Modeling of traffic flows indicate substantial volumes of traffic using the Bellevue interchange. The estimated PM peak hour volumes are approximately:

<table>
<thead>
<tr>
<th>Direction/Movement</th>
<th>500</th>
<th>800</th>
<th>550</th>
<th>650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- onto 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- off from 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- onto 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- off from 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Considered individually, land development proposals #1, 2, 3, 6, 8, 12, 13, 17, 19, 23-25, 28, 31, and 34 would have no significant impacts using the threshold defined earlier; their trip generation would be under 500 average daily trip ends, which is below the number that would normally trigger a traffic impact study. Projects with potentially significant impacts include projects #4, 5, 7, 14, 15, 16, 18, 20, 21, 26, 27, 32 and 35. Projects that would have significant impacts (more than 2,000 ADTE) are 9-11, 22, 29, and 30.8

Project 3: The density of the project is supportive of transit, and is slightly more than a quarter mile to the NWP line. Traffic access is primarily via the Northpoint Parkway Extension, which tends to minimize impacts on Hearn Avenue, which was not intended for improvement to arterial standards.

Project 4: Density is the minimum supportive of transit (about 8 DU/acre). Considering the proximity of this site to the Northwestern Pacific Railroad (NWP), the density does not conform with the goals of encouraging transit ridership on the NWP. A higher density use might be considered
at this location, along with where an appropriate transit station should be located in the vicinity of Hearn Avenue (for a light rail line, station spacings of approximately one mile in built-up areas are typical, providing for a maximum walking distance of no more than a half mile).

Project 5: Density is close to being supportive of transit services along Burbank Avenue. Traffic volumes on Burbank Avenue would increase to a noticeable degree.

Project 7: Density would be supportive of transit service on Burbank Avenue. Traffic volumes on Burbank Avenue would increase to a noticeable degree. The new street easterly of the site would help reduce the traffic impact on Burbank Avenue, however.

Project 9: Density appears supportive of transit service on Sebastopol Road. Higher-density and multi-family units should be clustered near potential transit stops. Traffic along the outer portion of Sebastopol Road (from Wright to Corporate Center Parkway) would increase appreciably as a result of this project. Two four-way "crossroads" type intersections are proposed along Sebastopol Road. Although not formally studied, it is likely that neither of these would be signalized. It may be desirable to eliminate one of the crossroads intersections and convert it into a staggered "T" type intersection. Pedestrian/bicycle access to the abandoned Petaluma & Santa Rosa (P&SR) Railroad right-of-way should be provided.

Project 10: This low-income housing project would have densities supportive of transit services, but placement of two parking modules between Sebastopol Road and the first set of buildings would tend to isolate the site from the bus service. Parking might be more appropriately placed to the rear (northside) of the project; this would act as a noise buffer with Highway 12, and would also improve the project aesthetics. The trip generation of the project may be less than noted here if consideration is given to the lower income characteristics of the residents. The project impacts outer portion of Sebastopol Road, as does Project 9. Pedestrian/bicycle access to the abandoned Petaluma & Santa Rosa (P&SR) Railroad. right-of-way should be provided.

Project 11: This mixed use project affects traffic volumes on both Stony Point Road and Hearn Avenue. The proposed project access on Stony Point Road may require additional study and/or changes. It may also be desirable to provide a road connection between the rear (west side) of the
project and Northpoint Parkway. This would reduce the circuitry of vehicle travel for project residents, but is unlikely to result in "cut through" traffic.

Project 15: Project density is supportive of transit, but will add traffic to a key segment of Stony Point Road which will be difficult to widen to a full four lane section.

Project 16: Project density is supportive of transit. Project traffic is likely to make use of S. Dutton Avenue and possibly Bellevue Avenue to the proposed 101 interchange, although access to Bellevue Avenue is not a given. The internal circulation (roadway system) of this project deserves additional study. Traffic management measures may be required to discourage speeding on relatively long, straight stretches of road proposed.

Projects 20 and 27: These projects are, like 16, will be dependent upon Bellevue Avenue as a major access route. The proximity of project 20's access to South Dutton Avenue may be too close to the Bellevue/South Dutton intersection (this could not be determined from the site plan reviewed). Low density single family housing in 27 is not supportive of transit service.

Project 21: This site is along an existing transit route and is within walking distance of the proposed Bellevue Transit Station. Project density (8.9 DU/acre) is supportive of transit service, but does not fully conform to plan goals of encouraging transit ridership. The density is too low considering the great value of its proximity to the Northwestern Pacific Railroad tracks.

Project 22: Location of project will require improvements to S. Wright Road and Ludwig Avenue before a considerable number of units are developed on the land. If environmentally compatible, pedestrian connection across the wetland area would be desirable, otherwise, there will be a gap of more than 1000 feet in the north/south pedestrian network.

Project 26/32: Project access at Stony Point Road may require further study. Improvements/off-site mitigations may also be required at Stony Point Road/Hearn Avenue. Alternative A provides better connections with adjacent development than does Alternative B.

Project 29: Portions of the development along Hearn Avenue near the NWP (Project 29C) should be considered for higher density development that would support high-quality transit service along
the NWP corridor. Access along adjacent streets—especially Hearn and Dutton Avenues—should be given careful consideration.

The internal circulation generally provides for a discontinuous grid, which is desirable. Where some dead-end or loop streets are used, consideration should be given to bicycle or pedestrian connections. Consideration should also be given to how residents could access future transit services operating in the vicinity because the project street system would not provide for good internal transit circulation.

Project 30: The Air Center is the largest single project in the Southwest, accounting for approximately 29 percent of all of the trip generation from the proposals to date. The physical size of the project, along with the large number of trips generated, would require more detailed analysis of the internal street system. Some of the proposed streets may conflict with wetlands or open space. Improvement to Wright Road, outer Sebastopol Road, and Ludwig-Bellevue Avenue, are likely to be required.

Only a portion of this site (phase I development) has a detailed site plan. Both alternatives A and B have the same connections to Northpoint Parkway. Curving streets in alternative B result in more linear feet of street, and less housing on the site, than A does. Otherwise, both plans seem to be acceptable from a traffic standpoint.

Project 35: The elementary school is proposed to have its major access on South Dutton Avenue, which is desirable. Internal circulation deserves greater attention; the present plan seems to unnecessarily separate most of the athletic activities from the buildings with large parking areas, which creates potential vehicle/pedestrian conflicts.

Impact 3.1.4-6

Many of the projects proposed to date would have significant or potentially significant transportation and traffic impacts because of the number of trips they generate and the final layout of their internal street systems. The level of significance will depend on the project, but cumulatively the impact would be significant (S).
Mitigation Measure 3.1.4-6 (I)

Mitigation measures should include:

- Preparation of project specific (site) traffic impact studies in accordance with the City's current guidelines. These studies can assess in greater detail what local improvements (on and off site) are needed to accommodate increased vehicular, pedestrian, and bicycle trip generation.  

- Following policies in the Area Plan that deal with methods of reducing trips and traffic congestion.

- Incorporating site specific mitigations noted in the previous pages into revised project plans.

RELATIONSHIP TO CONGESTION MANAGEMENT PROGRAM

As an urbanized county, Sonoma County is required to prepare and update in odd-numbered years a congestion management program (CMP). Under Government Code section 65089, the CMP must include a program to analyze the impacts of land use decisions made by local jurisdictions on the regional highway and transit system. The Sonoma County Transportation Authority (SCTA) is the designated congestion management agency in the county.

Sonoma County's first CMP was adopted in November 1991, and calls for analysis of any land use proposal that is both a general plan amendment and would generate more than 500 net new vehicle trips (compared to the existing general plan) in the peak hour. The CMP is currently being updated and is slated for adoption late in 1993. The draft revisions to the land use analysis program would make all projects that would generate 400 or more net PM peak hour trips subject to the land use analysis, with the reference point of comparison the existing use of the site.

The Southwest Area Plan would not be subject to SCTA review under the provisions of the existing CMP, but would be subject to review if the proposed changes to the program are adopted in the 1993 CMP. This is because the project (as demonstrated in the No Project discussion) would decrease the number of trips allowable compared to the current general plan. If a local jurisdiction (such as the City of Santa Rosa) determines that the project will not meet the trip generation threshold, no SCTA review is required. On the other hand, under the proposed requirements, the 400 PM peak hour trip threshold would be exceeded. The implication in the draft CMP revision is that the CMP analysis would occur "after receipt of a completed application for any development project," which could mean
that each land development would be reviewed individually, rather than as a whole (which means this EIR might be exempt). The 400 PM peak trip threshold is equivalent to approximately 400 single family dwelling units.

PROJECT PHASING/TIMING ISSUES

Because the land development in the Southwest Plan would be built over a period of many years, not all transportation improvements would be required immediately. Traffic improvements have been divided into five phases, each consisting of an increment of about 2,000 dwelling units (the last phase would include only about 1,550 DU’s).

- **Phase I**
  Dowd-Wiljan Connection
  Hearn Avenue improvements
  N. Wright Road widening
  Sebastopol Road widening west of Corporate Center Parkway
  Stony Point Road widening (Hearn to Sebastopol Road)

- **Phase II**
  Bellevue Avenue improvements
  Bellevue Avenue ramps (but not bridge)
  Dutton Avenue Connection
  S. Wright Road (North of Northpoint Parkway) widening

- **Phase III**
  Completion of Bellevue Interchange (bridge and intersection widening)
  Bellevue-Ludwig Connector
  Stony Point Road widening (Hearn-Ludwig and Sebastopol Rd. to Highway 12)

- **Phase IV**
  Hearn Avenue Interchange Modifications
  Northpoint Parkway Extension (Stony Point Road to Dutton)

- **Phase V**
  Wright/Fulton Interchange
  Todd Road widening (Standish to Highway 101)
  Stony Point Road widening (Ludwig to Todd Road)
Impact 3.1.4-7

The development of different areas in the Southwest Area would create the need to make improvements on individual streets and roads. The precise impact of each significant, or potentially significant development, should be considered in the traffic impact analysis prepared for each site. The Area Plan lays out a phasing program of transportation projects that should keep traffic level of service within acceptable standards. Future traffic conditions will depend upon the timing and occupancy of future developments, which will depend upon market conditions and numerous factors that are outside the control of the City. For short periods of time (perhaps several months to a few years), traffic level of service may fall below standards until transportation improvements can be implemented. This is a potentially significant impact (PS).

Mitigation Measure 3.1.4-7 (I)

Mitigation measures should include:

- Implementation of the financial plan to assure that there will be adequate and timely funding of all of the projects proposed in the plan.

- Periodic data collection programs (such as traffic counts, delay and travel time studies) conducted by the City and by project applicants as part of the monitoring program to assess traffic conditions, and suggest necessary changes to the timing of projects. It is recommended that property owners pay an annual fee to allow the City to recoup the costs of the monitoring program.

- Building traffic improvements sooner than the phasing program calls for, whenever opportunities appear for additional public and/or private funding, and demand at present or in the near future warrants.

1. *General Plan, Santa Rosa 2010* prepared by the City of Santa Rosa Department of Community Development, 1991, Figure 3, Chapter V.

2. Additional information on model calibration, i.e. the process by which the model is adjusted to make sure it adequately represents actual traffic counts, can be found in Technical Memorandum #2, "Southwest Master Environmental Assessment Traffic Study," prepared by DKS Associates, 1990. In most cases, model-predicted link volumes for the calibration years (1987 and 1990) were found to be within 10% of the actual (counted) volumes. On high volume streets, and freeways, the model is generally more accurate than the 10 percent range.

3. The principal differences affecting the Southeast Area would be that the City proposes to leave open the Baker Avenue ramps, and designate no HOV lanes on 101 (six basic mixed-flow lanes).


7. The City's guidelines for traffic impact studies are not based solely on the trip generating characteristics of the developments. If the peak hour trip generation for uses such as a residential, lodging, recreational, institutional, medical, wholesale stores, churches or warehouses is less than 50 peak hour vehicle trip ends, a traffic impact study will generally not be required. Traffic studies will generally be required for office uses, retail, commercial, banks, restaurants, auto service stations, drive-through facilities and entertainment uses.

8. It should be noted that comments on individual projects have been based on the review of 8-1/2 by 11 drawings and varying scales, and therefore these are not intended to be definitive site plan reviews.

9. The City's guidelines for traffic impact studies are not based solely on the trip generating characteristics of the developments. If the peak hour trip generation for uses such as a residential, lodging, recreational, institutional, medical, wholesale stores, churches or warehouses is less than 50 peak hour vehicle trip ends, a traffic impact study will generally not be required. Traffic studies will generally be required for office uses, retail, commercial, banks, restaurants, auto service stations, drive-through facilities and entertainment uses.
3.1.5 Visual Quality and Community Character

3.1.5 VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHWEST AREA PLAN

SETTING

The City of Santa Rosa is situated within the Santa Rosa Plain, which is a wide, open plain that divides the Sonoma Mountains to the east and Mendocino Range to the west. The 3,800 acre Southwest Plan Area is a visually diverse landscape located in the southwest urban boundary of Santa Rosa. The northern and western margins of the Plan Area are more intensely developed than other interior portions of the Plan Area and form the urban edge of the southwest quadrant of the City adjacent to State Highway 12 to the north and U.S. 101 to the east.

The Southwest Plan Area is visually diverse because of the mixture of open spaces and developed areas that currently exist there. There are open agricultural lands with single residences and agricultural structures at scattered locations. There are also recently constructed residential neighborhoods and business parks at various locations mixed with older residences and agricultural buildings symbolic of past agricultural activities that existed in the area. Contemporary architecture is mixed with earlier building styles extending back to the early 1900s. Industrial uses are mixed with commercial development, and although the land is essentially flat, street trees associated with development and existing oaks in more open spaces add to the visual variation of development patterns to be seen in the Southwest Plan Area.

At the current time, the Southwest Plan area does not provide a strong sense of "place" or contain well defined entry points. Exceptions would include the extensive row of auto dealerships fronting Corby Avenue at the east margin of the Plan Area that is clearly visible to U.S. 101 motorists. This portion of the Plan Area retains its own visual significance oriented toward commerce. Similarly, near the intersection of Dutton Avenue and Sebastopol Road at the northeast corner of the Plan Area are located the cylindrical silos and intricate steel lattice structures of the Redwood Feed and Mill Company. Because of their height and unusual form, these industrial structures are visible from both U.S. 101 and Highway 12, and comprise a major visual landmark for the Southwest Area.

To illustrate existing conditions, project area photographs are provided on Figures 3.1.5-1 through 3.1.5-4. Figure 3.1.5-1A is a view north along Corby Avenue where the auto dealerships are located. Figure 3.1.5-1B is a view of the Redwood Feed and Mill structures noted above. Figure 3.1.5-2A is
A. View north along Corby Avenue.

B. View of the Redwood Feed and Mill Structures.
A. View east along Sebastopol Road near West Avenue.

B. View south along Dutton Avenue, north of Barham Avenue.
A. View west along Northpoint Parkway.

B. View west from the western terminus of Northpoint Parkway.
A. View southwest across project site #29A (Bellevue Ranch).

B. View east across the Santa Rosa Air Center landing strip.
a view east along a commercial portion of Sebastopol Road near West Avenue in the northeast portion of the Plan Area. Figure 3.1.5-2B is a view south along a residential portion of Dutton Avenue, north of Barham Avenue, where street trees provide shade and vertical accent within what would otherwise be perceived as a predominantly flat landscape with minimal visual amenities.

Figure 3.1.5-3A is a view west along Northpoint Parkway in the center of the Plan Area. This road leads into the Northpoint Business Park area which is a contemporary example of suburban office development. Figure 3.1.5-3B is a view west from the western terminus of Northpoint Parkway, indicating great visual contrast between developed areas and open space areas of the Southwest Plan Area. This view encompasses a portion of the abandoned north-south runway of the Santa Rosa Air Center, a surplussed World War II Navy air installation (Project #30, Air Center). The lone remaining aircraft hanger together with several old military buildings may be seen in the background. The flat landscape of the Plan Area is clearly evident in Figure 3.1.5-3B. This figure also illustrates the openness and lack of development in the central to south portion of the Plan Area.

Figure 3.1.5-4A is a view southwest across project site #29A (Bellevue Ranch). Again, the flat landscape of the Southwest Plan Area is evident in this figure. The photograph was taken from the west end of Southwest Community Park. Because of agricultural use, there are no trees on the site and grassland predominates. Figure 3.1.5-4B is a view east across the Santa Rosa Air Center landing strip toward the rolling hillsides and foothills of Taylor Mountain in the vicinity of the Southeast Plan Area. These hillsides are the principal evidence of topographic variation visible from the Southwest Plan Area.

To summarize, much of the Plan Area is built, particularly to the north along Sebastopol Road and the U.S. Highway 101 corridor. Scattered development of housing, industrial, commercial, business park and recreational land uses are scattered throughout the remainder of the Plan area. Significant portions of the Plan area remain undeveloped and are currently used for agriculture. Older portions of the Plan area, particularly to the northwest, appear rundown, unkempt and abandoned with unused buildings. Undeveloped areas generally appear semi-rural in character, while developed areas, inclusive of recently constructed business uses in the Northpoint Parkway area and development along Hearn Avenue and near U.S. 101 appear distinctly urban because of the density and intensity of development.
3.1.5 Visual Quality and Community Character

IMPACTS AND MITIGATION MEASURES

Introduction

Visual conditions within the Plan Area are the result of development within the existing setting. The future appearance (and thus visual quality and community character), of the Plan Area will be the result of existing conditions plus future development under the buildout scenario.

Standards of Significance

Visual quality is the perceived aesthetic value of an area based on a combination of inherent natural features and physical modifications over time. The analysis of scenic quality considers natural elements which establish the character of the scene: these include landforms, existing vegetation, water, color and light among other considerations. In addition, alteration or disturbance of the natural scene over time is considered. Finally, changes resulting from a proposed action or series of actions are evaluated.

Thus, visual quality and the aesthetic value of a project site in its current undeveloped state is a subjective judgement by the observer of the site. The standards for determining the significance of visual impacts from development include the following:

1) Visual impact at full buildout would be measured by the amount of visual change affecting the Plan Area’s aesthetic value. The same would be true for an individual project site within the Plan Area and be consistent with the CEQA Guidelines (Section 15126), to identify direct and indirect significant effects of a project.

2) Visual impact would include the compatibility of visual change of the project site as compared to the surrounding environment.

3) Visual impacts of the developed Plan Area (or individual site), would be derived from project site grading, vegetation removal, the physical layout of buildings with respect to each other, building bulk and height, the density of building placement, site landscaping, parking areas and other features of development.
Viewpoint distance and altitude (viewpoint location), with respect to a project site would also influence visual impact perception. It is expected that the elements of building configuration, building size, architectural style, open space and landscaping details would have the greatest influence from close-in viewpoints. As one moves away from a site, specific development details would become less important in defining visual impact while building bulk, roof lines and the overall extent of development would remain significant features within the field of view.

Buildout Potential and Visual Effects

At buildout, and as envisioned in the Southwest Area Plan, the Plan Area would contain 14,229 residential units housing a population of approximately 38,320 individuals. There would be about 7,937,400 gross square feet of commercial space (retail, industrial, R&D, office space), 555,000 gross square feet of institutional space (schools, fire station, post office), about 148 acres of developed park land and approximately 150 acres of designated open space. This compares to an existing count of 4,616 residential units housing a population of approximately 14,122 individuals, 4,629,400 gross square feet of commercial space, 249,520 gross square feet of institutional space, 25 acres of developed park land and 14 acres of designated open space. Currently vacant land amounts to 1,424 acres. Thus, existing development within the Southwest Plan Area is about one-third of the development potential.

Buildout of the Area Plan would have three visual effects. First, development in the northwest portion of the Plan Area would increase urbanization on lots that are currently partially used or undeveloped. Lots that appear abandoned or show evidence of past land use activities would be expected to be improved in their appearance because of debris removal.

Second, construction in the north to northeast portions of the Plan area would increase the level of urbanization because of increased development intensity. Third, development in the center of the Plan area and to the south and west would introduce urban land uses to what is predominantly viewed as an area semi-rural to rural in character at the current time. Overall, Area Plan buildout would extend the urban form of Santa Rosa further to the southwest, west of U.S. 101 and south of Highway 12, increasing the geographic distribution of intensified land uses in the City.

This form of development would be consistent with the Southwest Area Plan and policies regarding growth and development. Because the Southwest Plan Area area is flat, project construction would
not entail hillside grading, the removal or alteration of hilly terrain, excessive grading or other alteration of site features that could constitute a significant visual impact. The exception would be the possible removal of existing vegetation, particularly specimen oaks or oak woodland. This subject is discussed separately in Section 3.2.3, Vegetation and Wildlife.

Infrastructure development consisting of sewer, water, electricity, communications and natural gas distribution would be required for Area Plan development. These facilities would be located underground and out of view. Visual impacts would be short-term, and would include construction activities and materials storage. Construction of the Bellevue overcrossing and interchange at U.S. 101 would be within an existing urban area, would not be introduced within a rural setting, and would be similar in appearance to other nearby freeway overcrossings along the U.S. 101 corridor in Santa Rosa. No significant visual impacts would be derived from the Bellevue Interchange/Infrastructure projects because of existing urban development (the proposed Fulton/Wright Road interchange at State Highway 12 is discussed separately below).

Impact 3.1.5-1

Buildout of the Southwest Area Plan would convert land parcels that are currently semi-rural to rural in character to an urban condition. This development would constitute a significant change in visual conditions within central to south and west portions of the Plan Area, and Southwest Santa Rosa. Thus the impact would be significant and unavoidable. (S)

Buildout of the Southwest Area Plan would extend the urban form and character of Santa Rosa to within much of the 3,800 acre Southwest Plan Area. There would be an approximate 67 percent increase in development density and intensity. Because the topography is flat, grading requirements would be minimized as noted above and there would be no adverse topographic changes. However, there would be increased pavement for road construction, sidewalks, bikeways and parking areas. While few project plans have been submitted that illustrate building heights, it would be expected that most structures to be constructed within the Southwest Plan Area would be one to two stories in height, consistent with other existing structures in the Plan Area. However, with increased densities and development of currently undeveloped parcels, views of regional hillside areas and undeveloped lands from adjacent roadways and lots would be obstructed. The sense of open space that currently exists in many portions of the Plan Area would be lost. Vistas would be relegated to street corridors
between developed parcels (this subject is discussed further below). Urban centered growth in the Southwest Area would however, protect scenic qualities of the outlying rural areas.

Landscaping to be provided with new residential neighborhoods, commercial developments and parks would visually screen and reduce and the amount of perceived development in the Plan Area, and provide visual amenities enhancing localized views. It is important to note that while the Santa Rosa General Plan calls for development in the Southwest Area, the change in visual conditions affecting the existing setting would remain significant. While the impact would not occur at one time, visual change would occur over a period of years and be gradual.

The Santa Rosa General Plan indicates that U.S. 101 and Highway 12 around the Plan Area are scenic roads. These roads are defined under Objective TCS-4a as "special routes for visual enjoyment of the natural and urban setting —." Because the Plan Area is flat and existing development along the edges of the U.S. 101 and Highway 12 corridors obstruct views to interior portions of the Plan Area, development of the Plan Area’s interior would not be visible from U.S. 101 or Highway 12, and these two highways as scenic corridors would not be affected by buildout. However, it is important to note that development along the highway edges in the Plan Area would be seen from the Highways, and any infill development or redevelopment would be important to determining visual quality and sense community character to be gained as one passes by the Plan Area.

Because large numbers of people travel U.S. 101 and Highway 12 each day, development of the north and east edges of the Southwest Plan Area would significantly represent to visitor and resident alike the visual impression of southwest Santa Rosa. Such an impression would signify community character.

**Mitigation Measure 3.1.5-1**

The planning and design of projects for buildout of the Area Plan should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Program Chapter of the Southwest Area Plan. Conformance review would occur with each development decision utilizing the General Plan Urban Design Element, the Community Design Program of the Southwest Area Plan, and the City's Subdivision Design Guidelines to make decisions regarding proposed developments. Conformance review would also occur during the City's Design Review process prior to the issuance of grading and construction permits. (S)
With this mitigation, the visual impact as described above would still remain significant because of the extent of visual change. From a planning and design perspective, the Community Design Program Chapter of the Area Plan is intended to complement the City Design Review process as a means to achieve specific goals for development within the Plan Area.

Special issues related to site development and design are included in the Chapter, among other considerations. With adoption of the Southwest Area Plan, there would be in place a series of requirements and standards that would directly influence the visual nature and community character of future residential and commercial development in the Southwest Area. Goals, Objectives and Policies of the Community Design Program Chapter include considerations of building height and scale, design appearance, street landscaping, transitions from rural land to urban land, development density, preservation of visual amenities, cluster development to preserve visual and natural resources, design of community entries and focal points, lighting, signage, building setbacks, other planning and design features and public involvement in the planning and design process.

**Impact 3.1.5-2**

*Infrastructure construction of new roads, roadway widening, storm sewers, sanitary sewers and water supply, would require earth excavation, materials stockpiling and the use of construction equipment which would appear inconsistent with the setting. Road widenings would be expected to require the removal of existing trees at scattered locations which currently serve as visual amenities in the existing setting. (PS)*

The appearance of construction equipment, excavations and materials stockpiling would be short-term in duration and localized, lasting during the actual period of construction. The number of trees that would need to be removed coincidental with infrastructure construction cannot be determined at this time in the absence of details project plans. Because existing trees visually frame and enclose existing roadways, mitigate views to some properties and structures that are unused and provide vertical emphasis within the flat landscape, their removal would be an adverse visual impact.

**Mitigation Measure 3.1.5-2**

The stockpiling of sewer and water supply equipment prior to installation should be minimized to the extent practicable. Only materials required for several days of construction should be stockpiled at any given site at one time. (I)
3.1.5 Visual Quality and Community Character

The removal of trees necessary to install infrastructure should be compensated for consistent with the Street Design Standard Policies contained in the Community Design Program Chapter of the Southwest Area Plan. (I)

Adherence to the street tree mitigation noted above would be expected to improve the appearance of future conditions within the Southwest Plan Area.

For informational purposes, Figure 3.1.5-5 is the Community Design Map as envisioned in the Area Plan. The development of community entries at Sebastopol/Wright Roads and Ludwig/Bellevue Avenues and other features of the Community Design Map are as explained in the Area Plan Community Design Program Chapter. It is considered that these features as shown on the Map and explained in the Plan would substantially assist in assuring the development of a community character that is identifiable and recognizable as unique to the Southwest Area. In addition, the cleanup and development of currently unused property and the removal of abandoned buildings would serve to improve the appearance of portions of the Plan Area.

Impact 3.1.5-3

If constructed as proposed, the proposed Fulton/Wright Road overcrossing and interchange at State Highway 12 would be seen as increased urbanization in an area that currently appears semi-rural in character. The transition from rural to urban conditions to the eastbound Highway 12 motorist would be sudden and abrupt. (S)

Highway 12 is known as the Luther Burbank Memorial Highway in the Plan Area. Conditions of the setting along this highway as it proceeds west from the intersection of Fulton And Wright Roads toward the Town of Sebastopol, rapidly becomes rural in character. In a reverse direction, proceeding east from Sebastopol along Highway 12, the first substantial evidence of urban development would be indicated by the overcrossing and interchange project at Fulton and Wright Roads. The transition from rural to urban conditions would be sudden and abrupt. The rural character of the setting would be terminated as the motorist would enter the City of Santa Rosa because of the height, length and mass of the overcrossing project. Views to and from the area on either side of the overcrossing would be interrupted by the elevated structure, reinforcing the abrupt change from urban to rural and visa-versa depending on direction of travel.

92244 3.1.5-12
It is acknowledged that freeway overcrossings such as the proposed Fulton/Wright Road overcrossing are common sites for the freeway traveler in Santa Rosa. This is true for the U.S. 101 corridor, but not for two-lane Highway 12 west of the Plan Area.

Mitigation Measure 3.1.5-3

The structure crossing Highway 12 should be designed in such a way as to appear pleasing to the eye. In other words, it would be preferable to avoid large I beams supporting the roadway itself from assuming visual importance. The concrete exterior of the bridge structure could be designed to wrap around and screen from view all steel support work, and receive a textured treatment that is visually interesting and reduces the perceived scale and overall mass of the structure. However, the specific impact described above would remain significant. (S)

PROPOSED PROJECTS

SETTING

The 35 proposed project sites are dispersed throughout the Southwest Plan Area. Refer to the Setting discussion above under the Southwest Area Plan Setting for information relative to the proposed projects.

IMPACTS AND MITIGATION MEASURES

As noted above, project construction in portions of the Plan Area area would be expected to improve visual conditions; existing deteriorating site conditions would be eliminated and replaced with new development improving the appearance of the area. This would include projects #4, #9, #10, #28 and northern portions of the Air Center, project #30.

Of particular concern are projects #29A, Bellevue Ranch at 84.2 acres, and Project #11, Northpoint Village at 61 acres. These two project parcels are located in the south-central portion of the Plan Area and are currently undeveloped. Project #29A is located next to Southwest Community Park. Both parcels are highly visible from Hearn Avenue, a major Area Plan street, and would define to considerable degree the overall appearance of the center portion of the Plan Area at the time of project completion. The visual character of the community would be significantly defined by these two projects because of their size and location.
The Air Center, (project #30), consisting of 324 acres is the largest proposed project in the Plan Area, and also would have a substantial role in determining the visual character of the western portion of the Plan Area at project completion. The project would be expected to be built out over a period of up to 15 years, as indicated in the development application. Most other parcels are smaller than projects #11, #29A or #30, and generally comprise infill development. As explained in the Screening Analysis conducted for the Plan Area, it was therefore concluded that projects #11, #29A and would #30 be evaluated for their visual quality and community character impacts in the Southwest Area Plan EIR, and that all other Area Plan proposed projects be screened out of individual detailed analysis and be included in the cumulative analysis of visual quality impacts under buildout of the Southwest Area Plan.²

Project #11 (Northpoint Village), would include 440 housing units, 5,000 square feet of commercial space, 3.24 acres of developed park and 9.01 acres of open space. There would be 216 single family residential units with a maximum two-story building height of 35 feet and a minimum lot size of 3,500 square feet. There would also be 97 attached single family units (row houses), with a maximum two-story height of 35 feet and a minimum lot size of 1,500 square feet. One-hundred-twenty multi-family units are proposed at up to 18 units per gross acre and seven shop front units are also proposed for lodging or apartments (for additional information regarding the projects, refer to Section 2, Project Description).

Project #29A (Bellevue Ranch), is proposed to develop a variety of housing types in neighborhoods. The single family detached residential lots would range in size from 3,500 to 6,000 + square feet. The units would range in size from 1,000 to 2,300 square feet. Townhomes would range in size from 800 to 1,200 square feet. Apartment units would range in size from 500 to 900 square feet.

Four-hundred-eighty-two residential units would be constructed on the 84.2 acre site. Project #29A would also include a neighborhood commercial center on the easterly side of Stony Point Road (see Figure 2.3-30). The housing density would range from five to eight units per acre. Typical lot patterns as envisioned for this project are shown on Figure 3.1.5-6. Examples of some of the residential architectural concepts developed for this project are shown on Figure 3.1.5-7.
EXAMPLES OF RESIDENTIAL ARCHITECTURAL CONCEPTS,
PROJECT SITE #29A

NO SCALE

SOURCE: BARRY A. BERKUS A.I.A.
As noted in the application package for this project, the residential neighborhood would provide for a heterogeneous mix of housing types. The project would integrate different lot sizes within blocks to achieve variety in the overall pattern of blocks. The lotting would include detached garages serviced by either alleys or narrow side-lot driveways, or attached garages that are placed back on the lots. One and two-story structures are proposed.

Project #30 (Air Center) would provide for a variety of different housing types at locations throughout the 324 acre project site (the project proposal calls for a mid range of 1,312 residential units).

At two to eight dwelling units per acre, the Low Density Residential category could include a mix of single family detached and attached residences. Low Density Residential uses are generally situated near the periphery of the project site, and surrounding existing wetland areas (see Section 3.2.3, Vegetation and Wildlife for a discussion of wetlands and vernal pools). The Medium and Low Density category at eight to 13 units per acre is primarily intended as smaller lot subdivisions involving both single family and multi-family uses, including but not limited to townhouses and condominium projects. This category is situated close to the center of the site (see Figure 2.3-31). Medium Density and Medium High Density uses at eight to 30 units per acre are located near the center of the site in combination with one another and with other proposed retail and business service land uses. At these densities, potential housing types could include larger-scale townhouses and condominium projects, rental apartment projects and other multi-family housing. Commercial retail uses would be concentrated near the proposed intersection of Northpoint Parkway and Fresno Avenue.

Impact 3.1.5-4

The buildout of Projects #11, #29A and #30 would convert land parcels that are currently semi-rural to rural in character to an urban condition. This development would constitute a significant change in visual conditions within central to south and west portions of the Plan Area. Thus the impact would be significant and unavoidable. (S)

Buildout of Projects #11, #29A and #30 would extend urban development of the northern and eastern portions of the Plan Area to within major central and western portions of the 3,800 acre Southwest Plan Area. Being primarily residential with some commercial and park space, the form and
character of this development however, would not be like the type of commercial and business development that currently exists in the northern and eastern portions of the Plan Area. New development would be of neighborhood character with localized businesses, park, schools and open space amenities to support the local population.

Even so, views to broad undeveloped areas from local roadways that currently exist in many portions of the Plan Area would be lost. Project #11 would block views from Hearn Avenue to the west, Project #29 would obstruct views from Southwest Community Park and Hearn Avenue to the south and southwest, and Project #30 would obstruct views to the east from South Wright Road. There would be an increased sense of enclosure which is typical of higher density urban development. The area’s agricultural heritage would be significantly reduced through the loss of views to agricultural land uses, through the conversion of agricultural land to urban land uses and loss of agriculturally related structures that currently exist in the Plan Area (see Section 3.1.2, Land Use).

Higher density development adjacent to existing low density residential land uses would be expected to block views of regional hillsides to the east and northeast. Vistas to agricultural lands and open space areas would be obstructed by the density and intensity of development. Views would be relegated to street corridors between developed parcels in areas of new development. Views to oak woodland and open lands would still be available west of South Wright Road and south of Ludwig Avenue because these two roads define the Area Plan boundary and Urban Boundary.

As explained above for the Southwest Area Plan as a whole, landscaping to be provided with new residential neighborhoods, commercial developments and parks would visually reduce the amount of perceived development in the Plan Area and provide visual amenities enhancing localized views. As stated previously, while the Santa Rosa General Plan calls for development in the Southwest Area, the change in visual conditions affecting the existing setting would remain significant. While the impact would not occur at one time, visual change would occur over a period of years and be gradual.

**Mitigation Measure 3.1.5-3**

Planning and design procedures for each of the proposed projects should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Program Chapter of the Southwest Area Plan. Conformance review would occur with each development decision utilizing the General Plan Urban Design Element, the Community Design Program of the Southwest Area Plan, and the City's Subdivision Design Guidelines to make decisions regarding proposed developments. Conformance review would also occur.
3.1.5 Visual Quality and Community Character

during the City's Design Review process prior to the issuance of grading and construction permits. (S)

With this mitigation, the visual impact as described above would still remain significant because of the extent of visual change. From a planning and design perspective, the Community Design Program Chapter of the Area Plan is intended to complement the City Design Review process as a means to achieve specific goals for development within the Plan Area. Few project applications contained planning and design details. Therefore, the above mitigation measure will be important to ensuring community planning that meets the goals and objectives of the Area Plan.

1. Santa Rosa 2010, General Plan, July, 1991, Transportation and Circulation Element, Figure 4, Scenic Roads.

3.1.6 UTILITIES

INTRODUCTION

This section addresses potential impacts on utilities generated by the implementation of the proposed Southwest Area Plan, and the thirty-five proposed projects covered by the plan. This section addresses water supply and distribution, wastewater collection and treatment, and electrical and natural gas services. Under CEQA, analysis of projects that are consistent with a community plan that has a certified EIR needs only be limited to the examination of environmental effects that are peculiar to that individual project\(^1\). For this reason, analysis of the individual projects is limited to only those projects which are either inconsistent with the Southwest Area Plan, or contain potential impacts unique to that project. However, mitigation measures that are specified to mitigate impacts of the Southwest Area Plan would apply equally to all projects covered by the Plan.

A separate fiscal study has been prepared by the City to address the fiscal impacts of the proposed Area Plan. This study is intended to determine the required level of funding to provide for capital and operating expenses, and include recommendations for financing these improvements, as well as the mechanism through which individual projects will be assessed their proportion of the capital investment. The final Southwest Area Plan is planned to contain a feasible financing plan and payment mechanism that will ensure that all required capital improvements in the area will be made, and in a timely manner.

Portions of the study area for the Southwest Area Plan are not currently incorporated in the City of Santa Rosa. This analysis assumes that prior to development these areas will be incorporated into the City, and be included into the jurisdictions of the respective Santa Rosa utilities providers. Given this stipulation all analysis of utilities will be limited to those who are expected to be impacted by the Area Plan, and the thirty-five individual projects that are covered by the Plan. It should be noted that while development in the Plan Area would be extensive, this development has been anticipated and planned for by the Santa Rosa Utilities Department. This planning is reflected in the City's water and wastewater master plans, both of which assume growth scenarios that include the entire area within the Urban Boundary.

The proposed plan requires some governmental jurisdictional reorganization. The mechanism through which this reorganization would take place is the Sonoma Local Agency Formation
Commission (LAFCO). LAFCO's are responsible for coordinating logical and timely changes in local governmental boundaries. Please see Section 3.1.1, Relationship to Plans, for a discussion of the LAFCO annexation process.

SOUTHWEST AREA PLAN

SETTING

Water Supply and Distribution

The City of Santa Rosa supplies water to the City with water purchased from the Sonoma County Water Agency. The City's agreement with the Agency allows for a total maximum month withdraw rate of 50 million gallons per day (mgd). The 1992 average daily demand for water was 18.3 mgd, and the average day of peak month demand was 30 mgd. Additionally, the City currently has a groundwater supply for emergency use. Emergency water supplies consist of three wells which tap potable but very hard water at 1,200 feet below ground. This source was used for a brief period in 1983 when the Russian River was polluted with a formaldehyde spill.

The Sonoma County Water Agency delivers water to eight north coast cities and water districts with water drawn from approximately sixty feet below the Russian River near Forestville. These eight prime contractors retail water to over 275,000 people through approximately 70,000 customer connections. Over 80% of these water connections are residential services. Water in the Russian River flows from Lake Sonoma (west of Healdsburg on Dry Creek), and Lake Mendocino (near Ukiah on the East Fork of the Russian River). The water is chlorinated but not otherwise treated before distribution to Water Agency customers. The Agency currently has the permitted rights to draw 75,000 acre feet (AF) per year from its sources. The Agency currently delivers approximately 54,000 AF of water per year to its customers, leaving a surplus capacity of 21,000 AF per year.

The Sonoma County Water Agency's water contractors have projected their future water demand, and estimate that at buildout the areas that the Agency now serves will have a demand for 110,000-120,000 AF per year. This is approximately 113% more than the current demand, or 53% greater than the Agency's current water rights. Studies performed by the Agency indicate that adequate water is available from their current sources to supply this demand. The SCWA is currently in the process of preparing an EIR which will analyze this current source of water and alternative sources of water.
The City of Santa Rosa has projected its future water demand and estimates an ultimate demand for between 33.5 and 37.7 mgd per year in 2010 (approximately 35,086 - 39,550 AF/year). The City's water use estimates at buildout assume an ultimate resident population within the service area of between 162,300 to 183,800 individuals. This projection assumes an "ultimate service area" coincident with the City's current Urban Boundary, and includes the Southwest Area.

The City of Santa Rosa owns and operates the water distribution system within the City's Urban Boundary. The City also provides service to the South Park Sanitation District which includes the currently unincorporated Roseland area and land on either side of Highway 101.

The City of Santa Rosa Utilities Department encourages water conservation through an aggressive water conservation program, including lectures, demonstrations, rebates for low-flow toilets, etc. The Utilities Department also provides technical assistance regarding drought-tolerant landscaping, low-flow plumbing fixtures, water conservation kits, and water leak detection.

Southwest Area. Water supply in the Southwest Area comes from either the City's water distribution system, small community water companies, or private groundwater wells. While groundwater in the Area is generally good, there have been cases where groundwater usage and the construction of new wells has been banned because of possible contamination from faulty septic systems. The Sonoma County Health Department has noted several portions of the study area being in need of a public water supply.

The 24-inch Petaluma Aqueduct, which runs north-south parallel to the Northwest Pacific Railroad tracks to the west of Highway 101, and the 36-inch West Santa Rosa Transmission Main, which enters the Southwest Area from the west, are the primary distribution sources for public water to the Southwest Area. Figure 2.2-8 illustrates the existing water distribution system in the area, and the proposed system improvements. Refer to the Southwest Area Plan for a complete listing of water infrastructure improvements. The primary need in the Southwest Area is to provide service to those areas that do not have an adequate water supply in place; however, all water distribution infrastructure required to provide adequate service to the area has been evaluated and incorporated into the Water System Master Plan.
Wastewater Collection and Treatment

The City of Santa Rosa Utilities Department operates a sub-regional wastewater treatment system that serves the communities of Santa Rosa, Rohnert Park, Cotati, Sebastopol and part of the unincorporated county (South Park Sanitary District). The entire study area of the Southwest Area Plan is within the service area of the Subregional Wastewater Treatment System. In addition, the sub-regional system treats septic wastes from the majority of septic systems in central Sonoma county. Sewage is treated to an advanced, or tertiary level, at the Laguna Wastewater Treatment Plant (LWWTP).\textsuperscript{13} The Oakmont Wastewater Treatment Plant, a second treatment facility in northeast Santa Rosa, treats wastewater from the Oakmont area in the summer months and produces reclaimed water for landscape irrigation.

The facility that would service the Southwest Area is the Laguna plant. The current service capacity of the Laguna Treatment Plant is 18 mgd average dry weather flow (ADWF). The City is currently in the process of expanding the plant to 25 mgd which is projected to serve growth in the sub-regional area to the year 2010.\textsuperscript{14} Expansion of the plant will occur in two phases. The first phase will expand plant capacity to 22 mgd, and a subsequent expansion will bring the plant to the ultimate 25 mgd level. These two expansions will be evaluated by two individual Environmental Impact Reports. The current sub-regional average dry weather flow (ADWF) to the plant is 16.5 mgd, with approximately 12.5 mgd being generated by the City of Santa Rosa.\textsuperscript{15} The surplus capacity of the Laguna Treatment Plant is 1.5 mgd, and will be 8.5 mgd upon completion of the expansion.

The City has projected future wastewater generation in the city based on land uses established by the Santa Rosa General Plan, and the 1990 projections from the Association of Bay Area Governments (ABAG). The population estimates used in the wastewater projections indicated a resident population of 163,000 by the year 2000, and a population of 171,362 at buildout in 2010.\textsuperscript{16} Average dry weather flows for the Santa Rosa service area is projected to increase to 16.1 mgd in the year 2000, and to 17.1 mgd in the year 2010.\textsuperscript{17}

Approximately 50 percent of the sewage sludge generated by the Laguna plant is converted to methane gas, which is burned by a small cogenerator to provide energy at the Laguna plant. The remaining sludge is dewatered and hauled to the County's Central Landfill in Petaluma.
**Southwest Area.** Public wastewater collection and treatment in the Southwest Area is provided by the City of Santa Rosa, with collection services also provided by the Sonoma County South Park Sanitation District. Public wastewater collection services approximately 40% of the study area, with the remaining area using on-site sewage disposal systems.\(^{18}\) Five tributary areas cover the entire study area: The Llano Trunk Tributary Area, the Airport Interceptor Tributary Area, the Hearn Trunk Tributary Area, the Robles Trunk Tributary Area, and the Crosstown Trunk Tributary Area. The proposed Todd trunk would service a portion of the existing Robles area. Figure 2.2-9 illustrates the existing sanitary sewer system, as well as its proposed expansion. Refer to the Southwest Area Plan Infrastructure Chapter for a listing of proposed sanitary sewer improvements. The primary need in the Southwest Area is to provide service to those areas that do not have adequate infrastructure in place, but sufficient capacity does exist via the main trunk lines and the expanded treatment plant to accommodate buildout of the area.\(^{19}\)

**Electricity and Natural Gas**

Electricity and Natural Gas services in the Santa Rosa area are provided by Pacific Gas & Electric (PG&E). As the Southwest area is an area governed by the California Public Utilities Commission (PUC), PG&E is obligated to provide service to customers in this area. PG&E currently provides service to residential customers in the Southwest Area. PG&E has indicated that sufficient electrical and natural gas supplies are available to service proposed development in the Southwest Area.\(^{20}\)

**IMPACTS AND MITIGATION MEASURES**

**Introduction to the Analysis**

Assessments of significant impact are made when for a given public utility additional resources would be required to serve the proposed project at accepted service standards or when serving the project under current resources would reduce services to the existing public below accepted or current standards. Service standards of a particular local service provider are often based upon or reference standards developed by national professional associations concerned with such services. They may be technical or engineering standards. They may be standards required by law. They may be embodied in a city or county's general plan or other land use tools. However, specific impacts for a particular project are developed partially from such codified standards or formulas, and partially from the assessment of the service provider based upon their review of the proposed project.
The impacts to water services, and wastewater collection and treatment are derived from the increases in the resident population and commercial area that they serve. The development parameters that create utilities impacts are developed in Section 3.1.3, Population, Employment, and Housing. The City of Santa Rosa has also projected future development under the Plan and has developed the infrastructure element accordingly. The financing and phasing plan have been developed to provide services in a timely manner, and with the objective of minimizing both the disruption to existing residents, and the cost which will be borne by future development.

Water Supply and Distribution

Impact 3.1.6-1

Annexation and development of the Southwest Area would increase demand for water from the City by 5.4 mgd of water at buildout. This would represent a 29.5% increase over current City water use, and 35.6% of the increase in water use projected for Santa Rosa by approximately the year 2010. This would be an insignificant impact. (I)

Table 3.1.6-1 gives the projected water use for the Southwest Area. Total demand at buildout of the Southwest Area Plan is estimated at 6.7 million gallons per day (mgd). Current water use in the area is estimated at 2.6 mgd, of which approximately 50% or 1.3 mgd is supplied by the Sonoma County Water Agency via the City. Assuming a maximum increase in demand scenario of all water users in the Southwest Area connecting to public potable water supplies, there would be a net increase in water demand from the City of 5.4 mgd. Based on an estimated current city-wide demand of an average 18.3 million gallons per day (mgd), the increased demand for water in the Southwest Area would represent a 29.5% increase over current City water use. The City has projected a 15.18 mgd increase in water demand between 1992 and water system infrastructure buildout (anticipated between 2003 and 2013). The increased water use in the Southwest Area represents 35.6% of this projected increase city-wide. The level of water supply demand proposed in the Plan is well within the current limits of the Sonoma County Water Agency's existing water rights permits.21

Mitigation Measure 3.1.6-1

Current and future project sponsors should incorporate drought-tolerant landscaping, and low-flow plumbing fixtures to minimize the water use. (I)
Table 3.1.6-1
SOUTHWEST SANTA ROSA PLAN EIR – WATER USE ESTIMATE (Gallons Per Day)

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| LAND USE       | PROJECTS |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|----------------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                | 29       | 30   | 31   | 32/4/ | 33   | 34   | 35   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Single Family du. | 169,837 | 519,110 | 18,278 | 0    | 0    | 0    | 0    | 0    | 1,188,477 | 1,296,960 | 570,058 | 3,055,494 |
| Multi-Family du.  | 84,812 | 154,619 | 0    | 0    | 0    | 0    | 0    | 652,400 | 680,120 | 976,969 | 2,309,489 |
| Commercial Space | 20,230 | 11,900 | 0    | 0    | 0    | 0    | 0    | 42,995 | 522,374 | 372,652 | 938,020 |
| Institutional/5/ | 0        | 0    | 0    | 3,100 | 5,859 | 8,959 | 38,676 | 38,390 | 86,025 |
| Developed Park   | 16,030 | 61,830 | 3,206 | 0    | 0    | 0    | 0    | 104,172 | 57,250 | 177,498 | 338,920 |
| Total Residential Use | 254,649 | 473,729 | 18,278 | 0    | 0    | 0    | 0    | 1,840,877 | 1,977,080 | 1,547,027 | 5,364,983 |
| Comm/Inst Use    | 20,230 | 11,900 | 0    | 0    | 0    | 3,100 | 5,859 | 51,954 | 561,049 | 411,042 | 1,024,045 |
| Water Use (gpd)  | 290,909 | 547,459 | 21,484 | 0    | 0    | 3,100 | 5,859 | 1,997,003 | 2,595,379 | 2,135,567 | 6,727,949 |
1/ Represents existing land uses (SOURCE: Preliminary Admin. Draft – Southwest Area Plan) minus existing housing units to be removed.

2/ Plan surplus represents the difference between the potential buildout of the Preferred Area Plan and the total existing and proposed.

3/ Plan Total is the total potential development (at mid-point density) of the Preferred Alternative. SOURCE: Southwest Area Plan – Staff Report on Alternative Sketch Plans.

4/ Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.

5/ Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.

Note: Water use projections assume the following factors:
- Residential – 140 gallons per day per person (gpd/person).
- Retail/Services – 119 gallons per day per 1,000 sf (gpd/1,000 sf).
- Office Space – 77 gpd/1,000 sf.
- Industrial – 112 gpd/1,000 sf.
- Schools – 155 gpd/1,000 sf.
- Public Buildings – 77 gpd/1,000 sf.

SOURCE: EIP Associates.
Wastewater Collection and Treatment

Impact 3.1.6-2

Development of the Southwest Area Plan would increase wastewater flow to the Laguna Wastewater Treatment Plant by 3.04 mgd (ADWF) at buildout, a 24% increase over the current wastewater flow to the plant, and 66% of the City's projected increase between 1993 and 2010. This would be an insignificant impact. (I)

Table 3.1.6-2 gives the projected wastewater flow from the Southwest Area at buildout, and assumes a 80 gallons per day per capita generation factor. This table estimates that development of the Southwest Area Plan at mid-density would generate 3.6 mgd of wastewater at buildout.

Given that 40% of the Southwest Area is currently serviced by the sub-regional wastewater treatment system and current wastewater generation by existing development in the area is estimated at 1.4 mgd (from Table 3.1.6-2), it can be estimated that the Southwest Area currently contributes .56 mgd to the system. The remaining 60%, .84 mgd, is treated by on-site septic systems. Assuming a maximum impact scenario of all development in the Southwest Area, including existing development utilizing on-site septic systems, connecting to the sub-regional system, at buildout the area would contribute 3.6 mgd of wastewater to the system. This 3.6 mgd flow represents a 3.04 mgd, or 543% increase over current estimated wastewater flow from the area.

The City has estimated that current wastewater generation in the City of Santa Rosa is 12.5 mgd, and that this will increase to 17.1 mgd by the year 2010, a 4.6 mgd increase. The 3.04 mgd increase in wastewater flow from the Southwest Area at buildout represents 66% of the projected city-wide increase.

Mitigation Measure 3.1.6-2

Current and future project sponsors would be required to pay the wastewater connection fee prior to issuance of an occupancy permit. (I)
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1/ Represents existing land uses (SOURCE: Preliminary Adm. Draft – Southwest Area Plan) minus existing housing units to be removed.
2/ Plan surplus represents the difference between the potential buildout of the Selected Area Plan and the total existing and proposed.
3/ Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan – Staff Report on Alternative Sketch Plans.
4/ Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.
5/ Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.

Note: Wastewater generation is estimated using the following factors:
- Residential – 80 gallons/day/persons
- Commercial – .06 gallons/square foot/day
- Institutional – .04 gallons/square foot/day
- Developed Parks – 180 gallons/acre/day

SOURCE: EIP Associates

2. Dan Carlson, Capitol Projects Coordinator, Santa Rosa Utilities Department, telephone conversation with Erik Olsen, EIP Assoc., May 27, 1993.

3. Lynda Power, City of Santa Rosa Utilities Department, letter to Erik Olsen, EIP Associates, May 19, 1993. Average daily demand is the simple 12 month average of the reported monthly Average Daily Water Use. Average day of peak month demand is the Average Daily Water Use for the month of August.


6. Ibid. Much of this increased demand comes from customers who do not currently rely on the Agency for their water supply.


9. Ibid.


11. Ibid.


17. Ibid.


19. Ibid.

21. Letter from Sonoma County Water Agency, Randy D. Poole, P.E., Chief Engineer, November 5, 1993, to City of Santa Rosa, Department of Community Development, Associate Planner Jeff G. Schwob.

22. City of Santa Rosa Utilities Department.

3.1.7 PUBLIC SERVICES

INTRODUCTION

This section of the EIR addresses the impacts of the proposed Southwest Area Plan, and the thirty-five proposed projects, on service providers and their ability to provide public services for the Southwest Area. The subject areas include police protection, fire protection, schools, parks and recreation, and solid waste disposal. The development parameters that create public service impacts are developed in Section 3.1.3, Population, Employment, and Housing. Under CEQA, analysis of projects that are consistent with a community plan that has a certified EIR needs only be limited to the examination of environmental effects that are peculiar to that individual project. For this reason, analysis of the individual projects is limited to only those projects which are either inconsistent with the Southwest Area Plan, or contain potential impacts unique to that project. However, mitigation measures that are specified to mitigate impacts of the Southwest Area Plan would apply equally to all projects covered by the Plan.

Portions of the study area for the Southwest Area Plan are not currently incorporated in the City of Santa Rosa, but, prior to development, will be incorporated into the City, and will be included into the jurisdictions of the respective Santa Rosa public service providers. Given this stipulation all analysis of public service providers will be limited to those expected to be impacted by the Area Plan and the projects covered by the Plan. A separate fiscal study has been prepared by the City to address the cost and fiscal impacts of the proposed Area Plan. This study is intended to determine the required level of funding to provide for capital and operating expenses, and include recommendations for financing these improvements, as well as the mechanism through which individual projects will be assessed their proportion of the capital investment.

The proposed plan requires some governmental jurisdictional reorganization. The mechanism through which this reorganization would take place is the Sonoma Local Agency Formation Commission (LAFCO). LAFCO's are responsible for coordinating logical and timely changes in local governmental boundaries. Please see Section 3.1.1, Relationship to Plans, for a discussion of the LAFCO annexation process.
SETTING

SOUTHWEST AREA PLAN

Police Protection

Police services in the City of Santa Rosa are provided by the Santa Rosa Police Department. The total police department staff consists of 221 personnel, 145 of which are sworn officers. Of the total sworn officers 69 are currently assigned to field services. The current level of service based upon the 1992 population of the City of Santa Rosa is 1.2 sworn personnel per 1,000 population.\(^3\) The department's service goal is to maintain this 1.2 officers per thousand residents service level as a minimum, as this ratio has been declining over the past few years, and is down from 1.33 per thousand residents in the late 1980's. The Department utilizes "mobile" or motorized patrols, and operates 40 patrol vehicles for their 69 field service officers, or roughly 0.6 patrol vehicles per field officer.

Southwest Area. Law enforcement services in those portions of the Southwest Area that have already been annexed to the City are provided by the Santa Rosa Police Department (SRPD). The Department divides it's coverage of the city into 8 Patrol Zones. Each patrol zone is covered by 1 to 2 police officers depending on time of day, and 3 officers on the weekends. The portion of the Southwest Area currently within the City limits is served by Patrol Zones 2 and 8.\(^4\) Patrol Zone 2 covers the area east of Stony Point Rd. to U.S. Highway 101. Patrol Zone 8 covers the area west of Stony Point Rd.

The Santa Rosa Police Department has averaged approximately 10,000 arrests per year over the past three years city-wide.\(^5\) 15.6% of these arrests were for felonies, and approximately 20% of all arrests were for violent crimes.\(^6\) The SRPD receives typical residential calls in the Southwest Area including domestic violence, neighborhood disputes, burglaries, etc.; however, there is also drug and gang activity in this area.

Law enforcement in the unincorporated portions of the Southwest Area is provided by the Sonoma County Sheriff's Department. The SCSD law enforcement services to the area are provided through the SCSD main station located in the Hall of Justice, 600 Administration Drive, Santa Rosa. The Southwest Area is in the SCSD Zone 3.\(^7\) This zone encompasses approximately 100 square miles, and is bordered by Mark Springs West Road to the north, Rohnert Park on the south, Highway 116.
to the west, and east to the Napa County line. This zone has an average of three to four deputies working the zone per shift.  

In the Southwest study area, the Roseland area has historically had a "very high" crime rate. In early 1991 the SCSD established the Roseland Community Oriented Police (RCOP) substation in response to local residents requests for a greater police presence. This substation is staffed by 10 deputies, 1 sergeant, and 1 community service officer (non-sworn). Additionally, one detective spends approximately 50 percent of her time working in the Roseland area. This level of service correlates into a 1.17 sworn personnel per 1,000 population ratio, slightly less than the Santa Rosa Police Departments existing service level and goal. Typically there are two deputies on duty at any one time and cover approximately a 13 square mile area. Officers assigned to the RCOP substation are assigned exclusively to the Roseland area and have no other responsibilities. Half of the RCOP staff work the first part of the week, and half of the staff work the latter part of the week, with Wednesday being the overlap day when all officers are on duty together. This overlap day is used by the officers for community outreach, education, and other special assignments. The RCOP program allows officers more flexibility, and is more decentralized than is the City's program. Officers are allowed a great deal of individual authority, and are encouraged to develop innovative ways of providing police protection. In addition, RCOP deputies and sergeants do not rotate either shifts or assignments, as is the case with City officers.

Despite this increased police presence, Roseland is still one of the highest crime areas in the County. The 1990 Census estimated that the Roseland area (defined as the area bordered by Highway 101, Hearn Avenue, Stony Point Road, and Highway 12) had an estimated population of 9,841, or 5.9% the estimated 167,250 residents that live in unincorporated areas of Sonoma County. However, this area accounted for 17% of the felonies, and 17% of the misdemeanors that were reported in the jurisdiction of the Sonoma County Sheriff's Department over the July 1, 1992 to June 30, 1993 time period. Seventeen different languages are spoken in the Roseland area, and this area contains the majority of Sonoma County's minority population. This area contains significant social needs and problems not common in other portions of the County.

The California Highway Patrol is responsible for patrolling the Highway 101 and the State Highway 12 corridors that border the Southwest Area. In addition, the CHP enforces all vehicle codes in the unincorporated areas of the County, including investigation of abandoned motor vehicles and motor.
vehicle accidents, enforcement of speed limit and drunken driving laws, etc.\textsuperscript{17} By providing these services, the CHP allows the County deputies to focus on other types of criminal activities and crime prevention programs within the area.

**Fire Protection**\textsuperscript{18}

Fire protection and emergency services in the City of Santa Rosa are provided by the Santa Rosa Fire Department. The total fire department staff is 115.5 (including half-time employees). Of this total there are 103 authorized fire suppression personnel, consisting of 67 Fire Fighters, 3 Battalion Leaders, 27 Captains, and 6 Chiefs. All fire fighting personnel are also emergency rescue personnel. The Department operates 8 fire engines, and 1 ladder truck to provide coverage for the City of Santa Rosa. The Department has a response time service goal of 6 minutes, and currently achieves that goal in 99\% of all calls.

**Southwest Area.** Three distinct, but not entirely separate service providers maintain fire coverage of the Southwest Area: the Santa Rosa Fire Department (SRFD), the Roseland Fire District (RFD), and the Rincon Valley Fire District (RVFD). While the Roseland Fire District is a separate legal entity, it has contracted with the City for the provision of fire protection services. The Santa Rosa Fire Department provides fire protection services in exchange for the majority of the Roseland district’s property tax revenues.\textsuperscript{19} All the equipment at the Roseland Fire Station is provided by the City, and all the station personal are City employees. For this reason, this setting section will refer to the Roseland Fire Protection District as a portion of the City fire department, as impacts derived for the Roseland district will be impacts to the City fire department.

Fire protection in the Southwest Area is provided from Station 8 located in the Roseland Area at 830 Burbank Avenue. Station 8 is equipped with one engine, and is manned by two firefighters and one captain at all times. Current response time to the Roseland area, and the incorporated part of the Southwest Area around the Corporate Center Parkway, is 5 minutes or less.\textsuperscript{20} The more outlying areas within the Station 8 service area near Wright Road exceed this 5 minute level. A site more centrally located in the Southwest Area is being considered for the relocation of Station 8 at 1955 Northpoint Parkway (see Project #34).

The Rincon Valley Fire Protection District recently merged with the Bellevue Fire Protection District (BFPD). Areas served by the former BFPD are now served by the new RVFPD. This area includes
portions of the study area south of Hearn Avenue and west of Highway 101, representing approximately 15% of the total study area. The southern end of the Southwest Area is served from the Fire Station (formerly the Bellevue Station) at 207 Todd Road.\textsuperscript{21} The City of Santa Rosa has an agreement with the new Rincon Valley/Bellevue Fire Protection District that they will send out an engine if the District has a structure fire to respond to in the Southwest Area. The portion of the study area that is served by the RVFPD has known water delivery system deficiencies, and there is a Master Tax sharing agreement between the City and the former BFCD (and its successors), that ensures that the District will retain its share of property tax revenues from the tax base at the time of annexation.\textsuperscript{22} The City would receive revenues from all subsequent new development in the area.

\textbf{Schools}\textsuperscript{23}

The Southwest Santa Rosa area is served by five individual school districts (see Figure 3.1.7-1): Santa Rosa City High School District, Santa Rosa Elementary School District, Roseland Elementary School District, Bellevue Elementary School District, and Wright Elementary School District. All public secondary education in the study area is provided by the Santa Rosa City High School District. This district currently provides instruction for students from the Southwest area at three schools, Cook Junior High School (grades 7-9), Montgomery Senior High School (grades 10-12), and Piner High School (grades 10-12).

In the 1990-91 school year the Cook Junior High School had an enrollment of 1,056 students, and was reported to be very overcrowded despite the usage of many portable classroom units. The 1992-1993 enrollment of this facility was 1,150 students. There exists no surplus capacity at the Junior High School level for students from the Southwest area.

The 1992-1993 enrollment of the Montgomery Senior High School and the Piner High School was 1,617 and 1,559 students, respectively. To help reduce overcrowding at the Cook Junior High the District is planning to change from three-year (10-12) to four-year (9-12) high schools.\textsuperscript{24} This switch will require the development of additional high school facilities. The District is planning the development two new high schools; the Elsie Allen H.S. in the Southwest Area, which is presently under construction, and another in the Rincon Valley area of Santa Rosa. The Rincon Valley school is not presently in the development stage, but a site has been dedicated in the area for this purpose.\textsuperscript{25} The new Elsie Allen H.S. will have a 1,500 student capacity.\textsuperscript{26}
The Wright Elementary School District operates two elementary schools that service students from the western portion of the study area, Wright Elementary School, and Wilson Elementary School. The combined enrollment for these two schools in the 1992-1993 school year was 1,253 students, and, with in excess of 20 portable classrooms, these facilities are at full capacity. The District has secured funding, and is in the process of developing a new school (Robert L. Stevens Elementary School) at the site on Giffen Avenue at Stony Point Road.²⁷

The Roseland School District provides elementary education for students in the northern portion of the study area. This district currently operates two schools in the area, Roseland Elementary, and Sheppard Elementary. The combined 1989-1990 school year enrollment of these two facilities was 874 students, forcing the district to seek funding from the State for additional portable classrooms, as both school were very near capacity. The 1992-1993 school year enrollment in the district was 1055, with the additional 181 students that were added over the last three year period being housed in portable classrooms.²⁸

The Bellevue Union School District serves the southern portion of the study area, and operates two schools, Kawana Springs Elementary, and Bellevue Elementary. The 1992-1993 school year combined enrollment of these two facilities was 1322 students. Several portable classrooms are currently utilized by the District, and both schools are at capacity. The district has a site dedicated for a new school at 2655 South Dutton Avenue (see Project #35). The school district has not, however, secured funding for the facility, and it is unknown when this facility will be developed.²⁹

Finally, the Santa Rosa Elementary School District services students in the north-east portion of the study area, and currently operates one school with attendance from the study area, the Luther Burbank Elementary School. The 1992-1993 enrollment at this facility was 366 students.

Based on information obtained from the District, it has been determined that some short-term capacity does exist in the Wright Elementary School District and at the high school level. However, over the buildout period of the Plan all school districts serving the Southwest Area will exceed their current capacities. There exists no long-range planning process for the development of new school facilities in the study area.³⁰ Therefore, it is undetermined at this time how the increased student enrollments that are projected for school districts in the Southwest Area will be served. Each district
SOUTHWEST AREA PLAN

SCHOOLS

- Elementary School District Boundaries
- Existing School
- Proposed School (conceptual vicinity locations)
- Proposed School with district ownership of land

Note: The entire Southwest Area is served by the Santa Rosa High School District

Figure 3.1.7-1

February, 1994
DEPARTMENT OF COMMUNITY DEVELOPMENT
collects the maximum statutory developer fees allowed by law, as supported by their developer fee justification study.

**Parks and Recreation**

The City of Santa Rosa Parks and Recreation Department is responsible for the acquisition and maintenance of park land, and recreational facilities, as well as the maintenance of street medians and street trees. The City standard for parks is 6 acres of developed park or easily accessible open space per 1,000 population, excluding school grounds or other public use lands/facilities. The current inventory of parks within the Santa Rosa city limits is 409 acres, or 3.2 acres per 1,000 residents. The Santa Rosa Parks and Recreation Department assesses Park Development Fees and, if warranted, Land Dedication In-Lieu Fees based on the type of housing unit to be developed. The individual fees range from $2184 for a single-family detached unit, to $1248 for a mobile home.

**Southwest Area.** The existing 20-acre County community park in the area, the Southwest Community Park, is currently incomplete. The County does have long-range plans to complete development of the park, but it is unclear if this will be accomplished prior to its annexation. Upon annexation, the City has agreed to maintain and further develop the park. The only other public park in the study area is the 1-acre South Davis Neighborhood Park, which is operated by the City.

**Solid Waste Disposal**

The City of Santa Rosa has a contract with Sonoma County to dispose of its solid waste. The Central Landfill at Mecham Road in Petaluma, which is owned and operated by the County, is the facility that serves the City and the unincorporated portions of the Southwest Area. Garbage pickup is performed by Empire Disposal Corporation through a franchise agreement with the City. Glass, paper and aluminum are collected separately, and are recycled. This program, which has been operating since 1978, includes curbside recycling for all single family dwellings and some multi-family residential buildings.

The Central Landfill is projected to reach capacity by about 2005. This estimate assumes that County population growth will be within the range projected by ABAG, the Department of Finance, and the County. This estimate also assumes that the goals set forth by AB 939 will be met in the year 2000 (see discussion of AB 939 below). The County estimates that it currently achieves a 22% diversion.
rate. The County further projects a 30% diversion rate by the year 1995, and a 50% diversion rate by the year 2000. The current waste stream into the Central Landfill averages 1,500 tons per day, and the total amount of solid waste that was deposited at this facility in 1992 is estimated at 500,000 tons.

The County has a policy of providing a 50 year solid waste disposal capacity. To achieve this goal the County is proposing two alternatives to expand its landfill capacity. The first alternative is a proposed expansion of the existing Central Landfill, which would extend the life-span of his facility by approximately 15 years. The County hopes to have this proposal permitted for operation by 1996. The second alternative that is being proposed is the development of a new landfill site. The County is in the preliminary stages of planning this facility, which it hopes to have permitted by the year 2000.

Southwest Area. Refuse collection from the unincorporated portions of the Southwest Area are provided by West Sonoma County Disposal Service, Inc. Within five years of annexation of unincorporated areas into the City of Santa Rosa, the West Sonoma County Disposal Service must transfer the service rights to those areas to Empire Waste Management.  

**AB 939 and AB 1327.** Assembly Bill 939 (AB 939) requires that all cities in California develop programs which will enable them to divert 25% of their waste stream from landfill disposal by the year 1995, and 50% by the year 2000. Assembly Bill 1327 (AB 1327) requires that all cities in California adopt local ordinances mandating the provision of adequate areas for the collection and loading of recyclable materials in developments with five or more living units.

**IMPACTS AND MITIGATION MEASURES**

**Introduction to the Analysis**

Under CEQA, public services impacts are considered social or economic impacts, not environmental impacts. For this reason these impacts do not require the same level of analysis as other environmental impacts, and are not subject to mitigation. However, in certain instances public service impacts do qualify as environmental impacts, because these issues have the additional importance of being necessary to protect and maintain the public health, safety, and welfare. CEQA identifies a "significant effect on the environment" if any of the following conditions exist:
a) A proposed project has the potential to degrade the quality of the environment, curtail the range of the environment, or to achieve short-term, to the disadvantage of long-term, environmental goals.

b) The possible effects of a project are individually limited but cumulatively considerable. As used in this subdivision, "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 other projects.

c) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

Under condition "c" above, the impact of a project on a given public service would require a finding of significance, if this impact would reduce the level of service provision to the point where human beings were exposed to substantial adverse effects. For example, if new housing development in an area were to increase the demand for police protection to the degree that a department could no longer provide adequate protection for residents with available resources, this would directly expose these residents to substantial adverse effects. This situation would require a finding of "significant" as defined under CEQA. Similar situations could arise which would affect the level of service provided for fire protection, and substantial adverse affects to the public welfare could arise from inadequate provision of schools or park and recreational services.

Assessments of significant impact are made for a given public service when additional resources would be required to serve the proposed project at accepted service standards, or when serving the project under current resources would reduce services to the existing public below accepted or current standards. Service standards of a particular local service provider are often based upon or reference standards developed by national professional associations concerned with such services. They may be technical or engineering standards. They may be standards required by law. They may be embodied in a city or county's general plan or other land use tools. However, specific impacts for a particular project are developed partially from such codified standards or formulas, and partially from the assessment of the service provider based upon their review of the proposed project. The relevant information in these regards is developed for each service addressed in this section. The development parameters that create public services impacts are developed in Section 3.1.3, Population, Employment, and Housing. This section determined that development of the Southwest Area Plan at mid-range density will add 22,199 new residents, 9,540 new housing units, 3,308,000 square feet of new Commercial/Industrial space, and 305,480 square feet of new Public Institutional space to the Southwest Area. However, the impacts to public service providers would result both
from growth in their present service areas, as well as the additional service areas that would result from annexations.

Police Protection.

Impact 3.1.7-1

At buildout, the Santa Rosa Police Department would need an additional 30 officers, 18 patrol vehicles, additional support personnel, and to expand their current headquarters to maintain the current city-wide service level, and achieve their service goal in the Southwest Area. This would be a significant impact. (S)

The Santa Rosa Police Department (SRPD) provides police protection to all areas within the city limits, and would assume jurisdiction over any areas annexed to the City. Impacts to police services are the result of increases in the residential population and amount of commercial development in the area that they serve. Currently, the Santa Rosa Police Department provides police services to a portion of the study area. It is estimated that the SRPD’s jurisdiction covers approximately 20% of the study area, and 15% of the existing residents.\(^{39}\)

Assuming an initial Southwest Area service area population of 2,118 persons, and a resident population at buildout of 38,321, the net impact is an increased resident population within the service area of 36,203. To maintain the existing city-wide level of 1.2 officers per 1,000 residents, which is the Department’s expressed minimum service goal, an additional 30 officers would be required by the Department at buildout of the Southwest Area. Given the current 0.6 vehicles per field officer, there would also be a need for an additional 18 patrol vehicles. An increase in sworn officers of this magnitude would, additionally, necessitate an increase in support personnel (non-sworn), and the Department has indicated that they may need to expand their existing headquarters as well.\(^{40}\) The magnitude of the latter two requirements is undetermined at this time. The need for additional police resources could be addressed in an incremental manner if the development and the annexations were to occur over a period of years.\(^{41}\)

Mitigation Measure 3.1.7-1

The City should agree to fund the additional resources (30 additional officers, 18 additional patrol vehicles, increased support personnel, and an expansion of the existing headquarters) as requested by the Santa Rosa Police Department during annual budget process, over the buildout of the Plan. Timing of these additional resources would be keyed to population growth in the Southeast Area, with the standard of maintaining the current 1.2 officers per
thousand residents service level. This mitigation would reduce this impact to insignificant levels. (I)

Fire Protection

Impact 3.1.7-2

Providing adequate fire protection for development of the Southwest Area would require the relocation of the existing Station 8 to a site in the vicinity of Northpoint Parkway. This would be a significant impact. (S)

The Santa Rosa Fire Department has indicated that in order to provide adequate fire protection to the development anticipated under the Southwest Area Plan, and to maintain a maximum 6 minute response time, the existing Station 8 would need to be relocated to a more centrally located site on the Northpoint Parkway (see project #34). Relocation of the existing station would require the construction of a new station building, but would not require the addition of a new fire engine or firefighting personnel. The relocation would be required in approximately five years, depending on the pace of development in the area.

Mitigation Measure 3.1.7-2

The City should agree to provide adequate funds, at the time requested by the Fire Department, for the construction of a new fire station. Timing of this action would be as justified by residential and commercial development in the area, with the standard of providing satisfactory fire protection for the full Southwest Area. This would reduce this impact to insignificant levels. (I)

The Santa Rosa Fire Department is considering relocating the existing Station 8 to 1955 Northpoint Parkway (see project #34), and anticipates that the relocation would be required within approximately 5 years.

Impact 3.1.7-3

An additional fire station may be required in the Southwest Area to provide adequate fire protection at buildout. This additional station would require one additional fire engine, and an additional 9 full-time fire department personnel. This would be a significant impact. (S)

The Santa Rosa Fire Department has performed computer simulations of the demand for service in the Southwest Area at buildout, and these simulations indicate the need for another fire station in
addition to the relocated Station 8. It is undetermined at this time whether this demand will materialize or not, as this will be contingent on the pace, type, and ultimate extent of development in the area. If a new station were to be required, this station would need a staff of 9 full-time firefighters, and would need to be equipped with a new fire engine.

Mitigation Measure 3.1.7-3

The City should agree to fund, if required, construction of a new fire station in the Southwest area, and to provide the funding necessary for the new fire department personnel and equipment. An assessment of need would be required from the SRFD a minimum of 5 years prior to request of funds. Timing of this action would be as justified by residential and commercial development in the area, with the standard of providing satisfactory fire protection for the full Southwest Area. This would reduce this impact to insignificant levels. (I)

Schools

Impact 3.1.7-4

Buildout of the Southwest Area Plan would generate an estimated 3,846 new elementary school students, 469 new junior high school students, and 942 new high school students in the area. This would be a significant impact. (S)

At buildout of the Southwest Area Plan, this development would generate an estimated 3,846 new elementary school students (K-6), 469 new junior high school students (7-8), and 942 new high school students (9-12) (see Table 3.1.7-1). All schools in districts that service the Southwest Area will require the development of new school facilities to accommodate the projected increases in school enrollments at all age levels over the buildout of the Area Plan. It has been determined that some short-term capacity does exist in the Wright Elementary School District and at the high school level. However, over the buildout period of the Plan all school districts serving the Southwest Area will require the development of new school facilities. No long-run planning procedures are in place to coordinate the timely development of new school facilities in the City; therefore, it is unknown at this time how these additional enrollments will be provided for.

The districts standards for new schools are: elementary schools 600 students, middle schools 750 students, and high schools 1,500 students. The districts have indicated a range of methods which may be employed to provide for increased student enrollment. These methods may include the
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Note: Assumes student generation factors of:

Single-Family Housing Unit: K-6 .4 student/unit
7-8 .08 student/unit
9-12 .15 student/unit

Multi-Family Housing Unit: K-6 .4 student/unit
7-8 .02 student/unit
9-12 .05 student/unit

Generation factors from Jack Schreder & Associates.

1/1 Represents existing land uses (SOURCE: Preliminary Admin. Draft - Southwest Area Plan) minus existing housing units to be removed.
1/2 Plan surplus represents the difference between the potential buildout of the Selected Area Plan and the total existing and proposed.
1/3 Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan - Staff Report on Alternate Sketch Plans.
1/4 Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.

SOURCE: EIP Associates.
addition of portable classroom units, the partial development of new school facilities (i.e. the building of half of an additional school with completion as required), or the full development of new school facilities.

The projected new enrollments generated by buildout under the Southwest Area Plan will create a need under present estimates for approximately 6.4 new elementary schools, 0.63 of a new middle school and 0.63 of a new high school.

Under current State legislation, the City cannot deny administrative or quasi-judicial approvals for a development based on the development’s adverse impact on school facilities. Pursuant to this legislation, the sole mitigation for such impacts arising from administrative or quasi-judicial development approvals are fees imposed by the affected school district(s). The statutory fees as presently estimated and calculated will be inadequate to mitigate the impacts of development under the Southwest Area Plan on the elementary and middle school facilities of the affected school districts.

The prohibition on withholding development approvals, however, does not apply to legislative acts of the City, including such legislative acts as the adoption of zoning ordinances and amendments to the City’s General Plan. The City can require that, prior to the adoption of a legislative act needed for a proposed development, the development’s adverse impact on affected elementary and middle school facilities has been mitigated.

Mitigation Measure 3.1.7-4

The City Council shall not adopt a legislative act which allows residential development within the boundaries of the Southwest Area Plan unless the City Council first finds (1) that the impact of the development on the elementary school and middle school facilities which will serve the development has been mitigated, or (2) that there is no feasible method to reduce such impact and the benefits of the development outweigh its impact on the affected school facilities. A letter to the City from an affected school district stating that the impact of the development on the district’s facilities has been mitigated shall be conclusive evidence that the impact has been mitigated as to that district’s facilities. (1)
Parks and Recreation

**Impact 3.1.7-5**

Buildout of the Southwest Area Plan at mid-range density would require the development and maintenance of 230 acres of park land or accessible open space. This would be a significant impact. (S)

The City standard for parks is 6 acres per 1,000 population excluding school grounds. Given a projected ultimate residential population of 38,321 persons in the Southwest Area, in order to meet this standard a total of 230 acres of park land or accessible open space would be required. The Southwest Area Plan provides for 14 new neighborhood parks at approximately 7 acres each, and one new 25-acre community park, for a total of 123 new park acres. Including the existing 20-acre Southwest Community Park and the South Davis Street Neighborhood Park, the Southwest Area Plan indicates a total of 148 developed park acres. In addition, the Plan provides for 150 acres of designated open space, which could be counted towards meeting park standard if trails are provided.48

**Mitigation Measure 3.1.7-5**

Prior to issuance of a building permit the City should require that each current or future project sponsor in the Southwest area provide adequate park land dedication in their project proposals or the pay in-lieu Land Dedication Fees, and pay the Park Development Fees. This would reduce this impact to an insignificant level. (I)

Solid Waste

**Impact 3.1.7-6**

Development of the Southwest Area Plan would increase the solid waste stream to the Sonoma County Central Landfill by 22,123 tons per year. This would be a 4.4% increase over the current waste stream into the landfill. This would be an insignificant impact. (I)

Table 3.1.7-2 gives the projected solid waste generation from the Southwest Area at mid-range buildout. The current waste stream into the Central landfill is estimated at 500,000 tons per year. An additional 22,123 tons per year would be a 4.4% increase over the current level. The increased demand for service from increased population in the Southwest Area is within the growth anticipated by the County in estimating future solid waste generation in its service area, and actions have been
## Table 3.1.7-2
SOUTHWEST SANTA ROSA PLAN EIR – SOLID WASTE GENERATION ESTIMATE (tons per year)

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1/ Represents existing land uses (SOURCE: Preliminary Adm. Draft – Southwest Area Plan) minus existing housing units to be removed.
2/ Plan surplus represents the difference between the potential buildout of the Selected Area Plan and the total existing and proposed.
3/ Plan Total is the total potential development (at mid-point density) of the Selected Alternative. SOURCE: Southwest Area Plan – Staff Report on Alternative Sketch Plans.
4/ Projects 32 and 26 have been combined. Development proposed for the former Project 32 is now contained in Project 26 information.
5/ Institutional total includes 8 elementary schools, 1 junior high school, 1 senior high school, 1 fire station, 1 post office, and the Department of Motor Vehicles.

Note: Solid Waste Generation estimates assume the following factors:
- Residential: .652 tons per year per resident
- Commercial: .18 tons per year per 100 sf
- Institutional: 7 pounds/1000 sf/day
taken to assure that uninterrupted landfill service beyond the 2010 buildout date of the Southwest Area Plan will be provided. All development in the Southwest Area will be responsible for complying with all ordinances enacted by the City of Santa Rosa to achieve the goals mandated by AB 939 and the requirements of AB 1327.

Mitigation Measure 3.1.7-6

No mitigation required. Development in the Southwest Area will be responsible for complying with the City of Santa Rosa "Recycling and Waste Collection Areas" ordinance.

(I)


2. Unless otherwise noted all information contained in this subsection is from Ken Kimari, Santa Rosa Police Department, personnel communication with Sonia Jacques, Economic and Planning Systems, May 18, 1993.


5. Santa Rosa Police Department, Staff Activity Report, December 1992.

6. Ibid.

7. City of Santa Rosa, Southwest Santa Rosa Master Environmental Assessment, April 1991.

8. Ibid.


10. Ibid.

11. Ibid.

12. Ibid.


18. Unless otherwise noted all information contained in this subsection from: Chief Tony Pini, Santa Rosa Fire Department, personal communication with Sonia Jacques, Economic and Planning Services, May 18, 1993.


20. Ibid.


22. Ibid.

23. Unless otherwise noted, all information contained in this section from Jack Schreder and Associates, Government Relations Consultants for the Santa Rosa School Department, several written communications with Erik Olsen, EIP Associates, Summer 1993.


26. Ibid.

27. Ibid.

28. Ibid.

29. Ibid.

30. Ibid.

31. Unless otherwise noted all information contained in this section from Bill Montgomery, Santa Rosa Parks and Recreation Department, interviews with Sonia Jacques, Economic and Planning Systems, May 18, 1993 and July 15, 1993.


34. Ibid.

35. Unless otherwise noted, all information contained in this section from Ken Wells, Deputy Director of Sonoma County Public Works, telephone conversation with Erik Olsen, EIP Associates, May 27, 1993.


39. City of Santa Rosa, *Southwest Santa Rosa Master Environmental Assessment*, April 1991, p.18. The Southwest Area Plan covers approximately 3,800 acres, of which 900 (24%) are already incorporated into the City of Santa Rosa. However, the majority of the population in the study area (approximately 70%) are consolidated in the Roseland area, which is not annexed to the City. Therefore, only 30% of the existing residential population within the study area is located throughout the remain portions of the area. By overlaying the annexation boundaries on an aerial photo of the Southwest area it was estimated that approximately half of the development outside of the Roseland area is incorporated into the City, or approximately 15% of the total.


41. Ibid.

42. Chief Tony Pini, Santa Rosa Fire Department, telephone conversation with Erik Olsen, EIP Associates, August 11, 1993.


44. Chief Tony Pini, Santa Rosa Fire Department, telephone conversation with Erik Olsen, EIP Associates, August 11, 1993.


48. City of Santa Rosa, *Santa Rosa General Plan 2010*, July 1991, pp. IV-2 - IV-4. The General Plan allows for the inclusion of accessible open space (i.e. open space with trail access) in the park acre/person goal. This open space may include creek corridors.
3.1.8 HAZARDOUS MATERIALS

INTRODUCTION

This section describes the potential adverse impacts to human health and the environment due to exposure to hazards which could result from the development of Southwest Santa Rosa Area Plan Project. The potential hazards are those associated with the handling, storage, use and transportation of hazardous materials. Such impacts that are likely to result from the implementation of the Southwest Area Plan, the development of the Bellevue Interchange and other infrastructure projects, and the thirty-five proposed projects within the Southwest Santa Rosa and their mitigation measures are documented in this section.

The discussion on regulatory background and standards of significance for Southwest Area Plan applies to the development of the Bellevue Interchange and other infrastructure projects, and the thirty-five proposed projects.

SOUTHWEST AREA PLAN

DEFINITIONS

A number of properties may cause a substance to be considered hazardous, including toxicity, ignitability, corrosivity or reactivity. A substance is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, State or local regulatory agency, or if it has characteristics defined as hazardous by such an agency.

The California Department of Toxic Substances and Control (DTSC) defines the term "hazardous material" as a substance or combination of substances that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: 1) cause, or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed.

A "hazardous waste" is any hazardous material that is abandoned, discarded, or recycled (California Health & Safety Code Section 25124). The same criteria that render a material hazardous make a waste hazardous: toxicity, ignitability, corrosivity or reactivity.
Toxic, ignitable, corrosive and reactive materials are all subsets of hazardous materials and wastes. For example, if a material is toxic, it is hazardous, but not all hazardous materials are toxic. Specific tests for toxicity, ignitability, corrosivity and reactivity are set forth in Title 22 California Code of Regulations, Sections 66693-66708.

REGULATORY SETTING

Many agencies regulate the use of hazardous materials. These include federal agencies such as the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Nuclear Regulatory Commission (NRC), the Department of Transportation (DOT) and the National Institutes of Health (NIH). State agencies, such as the Health and Welfare Agency (HWA), the Occupational Safety and Health Administration (Cal/OSHA) and the Office of Emergency Services (OES) have parallel and in some cases more stringent rules governing the use of hazardous materials. Local jurisdictions may also have ordinances concerning the transportation, use and release of hazardous materials. In addition to the laws governing the use of hazardous substances, federal and State laws also exist to control the generation, transportation and disposal of hazardous wastes. At the federal level, the principal regulatory agency is the EPA. Within the State, the Department of Toxic Substances and Control (DTSC) has primary regulatory responsibility, but it may delegate enforcement authority to local jurisdictions that enter into agreements with the State agency. The Regional Water Quality Control Board has jurisdiction over water quality of the State and includes incidences of groundwater contamination.

The County Hazardous Materials Section has had regulatory authority (since 1986) over underground storage tanks pursuant to the Sonoma County hazardous materials Program and State Proposition 65 for reporting of hazardous materials exposure and releases. The County Department of Fire Services or the City Fire Department has the responsibility for above-ground hazardous materials storage and submittal of business plans which include an inventory of these substances.

The following are federal, state and local laws and ordinances pertaining to hazardous waste management:

Applicable federal laws:

- Federal Water Pollution Control Act
3.1.8 Hazardous Materials

- Clean Air Act
- Safe Drinking Water Act
- Toxic Substances Control Act
- Resource Conservation and Recovery Act
- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response Compensation and Liability Act
- Superfund Amendments and Reauthorization Act Title III
- NIH and National Cancer Institute Guidelines for Carcinogens and Biohazards

Applicable state and local laws:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Materials Release Response Plans and Inventory Act
- Hazardous Waste Control Act
- California Occupational Safety and Health Act
- Porter-Cologne Water Quality Control Act
- Air Toxics Hot Spots and Emissions Inventory Law

For each of the laws discussed above, the implementing agencies have developed regulations, standards and enforcement provisions. Applicable federal regulations are contained primarily in Titles 29, 40 and 49 of the Code of Federal Regulations (CFR). State regulations applicable to hazardous materials have been consolidated into Title 26 of the California Administrative Code (CAC).

Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and to prevent or minimize injury to human health or the environment in the event such materials are accidentally released. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and
Reauthorization Act or SARA Title III) impose similar requirements. Because the State law is more stringent than the federal law, only State law is discussed here.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (or the Business Plan Act) requires that a business that uses hazardous materials prepare a plan that must include:

- details, including floor plans, of the facility,
- an inventory of hazardous materials handled or stored,
- an emergency response plan, and
- a training program in safety procedures and emergency response for new employees, including annual refresher courses.

In 1988, the act was amended to include public agencies. State agencies were required to submit a business plan to local administering agencies in conformance with State requirements by January 1, 1990. By January 1, 1992, State agencies were also required to comply with local regulations implementing the Business Plan Act.

**Hazardous Materials Transportation**

The U.S. Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. DOT regulations govern all means of transportation, except for those packages shipped by mail that are covered by the U.S. Postal Service (USPS) regulations. DOT regulations are contained in the Code of Federal Regulations Title 49; USPS regulations are in the Code of Federal Regulations Title 39.

The State of California has also adopted these regulations for the intrastate movement of hazardous materials. State regulations are contained in the California Code of Regulations Title 26.

Every package type used by a hazardous materials shipper must undergo tests that imitate some of the possible rigors of travel. While not every package must be put through every test, most packages must be able to meet the following generic test: the ability to be (a) kept under running water for one-half hour without leaking; (b) dropped, fully loaded, onto a concrete floor; (c) compressed from both sides for a period of time; (d) subjected to low and high pressure; or (e) frozen and heated alternately.
Common carriers conduct a large portion of their business in the delivery of hazardous materials. Common carriers are licensed by the California Highway Patrol (CHP) under conditions specified in Division 14.1 Transportation of Hazardous Material, Section 32000.5 License to Transport Hazardous Materials. This section requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. If the supplier or distributor carries less than 1,000 pounds of material, a license is not required.

Under the Resource Conservation and Recovery Act (RCRA), the U.S. Environmental Protection Agency (EPA) set standards for transporters of hazardous waste. In turn, the federal government authorized the State of California to carry out EPA regulations for transportation of hazardous waste material originating in the state, or passing through the state; State regulations are contained in the California Code of Regulations, Title 26.

Two State agencies have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies: the CHP and the California Department of Transportation (CalTrans).

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations. The goal of these regulations is to prevent leakage and spills of material in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance.

Hazardous Material Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for ensuring worker safety in the handling and use of chemicals in the workplace. Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations within the State. Cal/OSHA standards must be at least as stringent as federal ones, and they are generally more stringent.
Cal/OSHA regulations concerning the use of hazardous materials include requirements for safety training, availability of safety equipment, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which deal with identifying and labeling hazardous substances, providing employees with Material Safety Data Sheets (MSDSs), describing the hazards of chemicals, and documenting employee training programs. These regulations also require the employers to prepare emergency action plans, including escape and evacuation procedures and alarm systems. In addition, Cal/OSHA enforces state occupational standards for asbestos for public projects.

Both federal and State laws include special provisions for hazard communication to employees through training in chemical work practices. The training must include methods of safe handling of hazardous materials, an explanation of MSDSs, use of emergency response equipment, and emergency response plans and procedures.

Hazardous Waste Handling Requirements

RCRA created a major new federal hazardous waste "cradle-to-grave" regulatory program that is administered by EPA. Under RCRA, EPA regulates the generation, transportation, treatment, storage and disposal of hazardous waste.

RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste management programs, as long as they are consistent with and at least as strict as RCRA. EPA must approve state programs intended to implement RCRA requirements. In California, the State program was created by the enactment of the Hazardous Waste Control Law (HWCL), which is administered by the Department of Toxic Substances and Control (DTSC). DTSC regulations govern the generation, transportation and disposal of hazardous wastes. These requirements are generally more stringent than the RCRA regulations.

Regulations implementing the HWCL list 791 hazardous chemicals and 20 to 30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous
wastes; prescribe management of hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and the HWCL, the generator of a hazardous waste must complete a manifest that accompanies the waste from the generator to the ultimate treatment, storage or disposal location. The manifest describes the waste, its intended destination, and other regulatory information about the waste. Copies must be filed with DTSC. Generators must also match copies of waste manifests with receipt from the treatment, storage or disposal facility to which it sends waste.

EXISTING CONDITIONS

The southwest area of Santa Rosa has historically supported industrial use. Much of the commercial and industrial development within the Southwest Santa Rosa Area Plan study area is located along Sebastopol Road, Barham Avenue, Corby Avenue and in the vicinity of the Santa Rosa Air Center and the Standish Avenue/West Robles Avenue intersection. Chemical storage and handling activities are associated with industrial use, which includes underground tanks that have resulted in releases of petroleum products and other wastes to soil and groundwater.

Agency lists that contain general information about sites that have had reported problems with hazardous materials were reviewed to obtain information on known sources of hazardous materials within the project site of Southwest Area Plan. The underground tank inventory and the list of leaking underground storage tanks with Sonoma County Public Health Department (SCPHD) indicated a few known sources of hazardous material within the Southwest Area Plan study area. A list of active toxic site investigations dated April 30, 1993 with the North Coast Regional Water Quality Control Board (NCRWQCB) was also reviewed. This list was more exhaustive and included the sites listed with the SCPHD. A total of 62 hazardous waste sites were identified on the NCRWQCB active toxic site investigation list. Approximate locations of these sites are shown on Figure 3.1.8-1. These sites have been grouped into the following categories:

- Underground Storage Tanks
- McMinn Avenue State Superfund Site
- Optical Coating Laboratory, Inc.
Underground Storage Tanks

Underground storage tanks were identified by the Environmental Health Department Hazardous Materials Section as part of the ongoing Sonoma County Hazardous Materials Program. The location of leaking underground storage tanks coincides closely with the commercial and industrial sites in the study area, and are concentrated along Sebastopol Road. Typically, leaking tanks have been relatively old and were installed before the County regulatory program began in 1986. Contaminants from this source include hydrocarbons, benzene, toluene, xylene and ethylbenzene.¹

Sixteen underground storage tank facilities were identified in the NCRWQCB Active Toxic Site Investigations List. A discussion on each of these sites, based upon the information obtained from agency files, is presented below.

Henris Supply, 3995 Sebastopol Road: This facility is a retail supply yard for roofing and building materials. Company vehicles were formerly fueled on site by gasoline and diesel underground storage tanks. Soil contamination was documented during tank excavation activities. An investigation was subsequently requested by the NCRWQCB. Three monitoring wells were installed. Groundwater samples indicated contamination by gasoline and possibly diesel. The investigation continues under SCDEH lead oversight.

Selvage Concrete, 3309 Sebastopol Road: The facility manufactures concrete septic tanks. Gasoline storage tanks were used for fueling vehicles. During removal of a 1,000-gallon underground storage tank on June 23, 1986, analysis of soil samples indicated elevated levels of hydrocarbons. A workplan to evaluate the extent of contamination was prepared. A phased investigation to evaluate the potential groundwater contamination was proposed which included installation of three groundwater monitoring wells. These wells were installed in September, 1988. In addition, a survey of domestic wells in the vicinity was performed. Results of the survey instigated additional investigation of groundwater quality and soil contamination which is in progress under SCDEH lead oversight.

Rays Food Center, 2423 Dutton Avenue: In January 1986, three underground storage tanks and associated pipings were removed from the site. Soil samples indicated elevated levels of TPH. Further soil sampling was performed to verify that a release of gasoline had occurred. An Unauthorized Release Form was filed on May 15, 1986. Soil in the area of the excavation was subsequently removed to approximately 17 feet below ground surface. Additional work was required to delineate the extent of soil and groundwater contamination. Remedial investigation at the site is in progress. Delays in remediation are attributed to insufficient funds with the responsible parties.
Henkin, Estate of Rawly Sonoma, 1011 Yuba Drive: Two 550-gallon underground storage tanks were removed from the site in January, 1990. During removal, petroleum odor was noted from each tank. Soil and water samples obtained after the removal of the tanks indicated hydrocarbon contamination at the site. Three boreholes/monitoring wells were installed on-site in April, 1990. Sampling and monitoring of the wells continued at the site. On April 14, 1992, the NCRWQCB agreed that no further investigative or cleanup work would be required at the site because there is no evidence that residual contaminants remain on site, and if any contaminants do remain, they do not pose a threat to the beneficial uses of groundwater or surface water.

Schneider, Egon, 60 Barham West: On April 10, 1990, two 1,000-gallon underground storage tanks were removed from this site. Soil and water sample analyses results indicated TPH and BTEX contamination. On June 20, 1990, soil excavation to approximately 9.5 feet below ground surface was performed, followed by soil analyses which confirmed contamination at the site. A copy of the Unauthorized Release Report was filed with the State Office of Emergency Services.

A preliminary site assessment was performed at the site. Field activities at the site included installation of three piezometers and one groundwater monitoring well. Further investigation at the site is in progress.

AM/PM Mini Mart, 440 Hearn Avenue: In response to an unauthorized release form regarding an underground storage tank leak at this site, the NCRWQCB requested a preliminary site workplan from the responsible party on May 18, 1990. The submittal of the workplan was delayed as the responsible party was evaluating alternatives to obtain financing for the necessary work.

Rickie’s Salad Corp., 242 Barham Road: An underground storage tank was removed from this site in March, 1986. Soil samples collected at the time of tank removal revealed levels of residual gasoline in the soil. On November 8, 1989, the NCRWQCB requested initial investigation of the site. Based upon the information submitted in response to the request, the NCRWQCB requested a workplan for further assessment of the site on July 10, 1990. Investigation at this site is in progress.

Biddolph Chevrolet, 2770 Corby Avenue: The property is used for an automobile dealership. Four underground storage tanks were installed on the property in 1964 and remained in operation until they were removed in 1986. Holes were noted in two of the storage tanks. Soil sampling indicated elevated levels of TPH, motor oil, benzene, toluene, and xylene, which threaten the beneficial uses of State waters. On June 20, 1990, the NCRWQCB issued a Cleanup and Abatement Order No. 90-136. On September 28, 1990, the NCRWQCB staff received a workplan to install groundwater monitoring wells, and on March 15, 1991, the final report of drilling was submitted. Groundwater sampling results following well installation confirmed that the groundwater was severely impacted. Benzene, which is a carcinogen, was found to exceed the maximum contaminant level for the protection of drinking water. The NCRWQCB issued a Cleanup and Abatement Order No. 91-88, revising the Order No. 90-136, on May 28, 1991. On June 13, 1991, the NCRWQCB met with the responsible party to discuss the scope of work and a time schedule for conducting the needed additional investigation and cleanup at the site. Further investigation at the site is in progress.
Freeman Toyota, 2875 Corby Avenue: In October, 1989, Freeman Toyota removed an underground unleaded gasoline fuel storage tank from service. Chemical testing of soil samples collected at the time of tank removal identified the presence of a low concentration of TPH as gasoline and BTEX fuel components. Subsequent excavation, sampling, and chemical testing activities were performed until tests showed no detection. The excavated gasoline-contaminated soils were aerated for remediation. The aeration process effectively eliminated the contaminants. On October 24, 1990, the NCRWQCB requested a workplan for determining the seasonal high groundwater level at the site. The workplan was submitted on January 28, 1991. Further investigation at the site is in progress.

Veale Volkswagen, 2800 Corby Avenue: In 1969, three underground storage tanks were installed at this site. During removal of the tanks in December, 1987, leakage from the piping connections at the tanks were observed and reported to the NCRWQCB in a report dated March 30, 1988. In March, 1988, a workplan to conduct additional soil sampling from the excavations, along with a plan for on-site aeration of contaminated soils, was submitted to the NCRWQCB. This investigation work was never implemented. On June 8, 1988, NCRWQCB staff met with the responsible party to discuss the need to submit a workplan proposing the preliminary site assessment effort. After receiving no response from the responsible party to their request for the submittal of workplan on October 4, 1988, and again on December 14, 1988, the NCRWQCB issued a Cleanup and Abatement Order in 1989. The workplan for preliminary site assessment was then submitted on June 23, 1989, and was implemented in March through May 1990. Field activities during this investigation included drilling of 11 borings, installation of three monitoring wells, and collecting soil and groundwater samples. Further investigation at the site is in progress.

Shell, 2575 Corby Avenue: An Unauthorized Release (Leak)/Contamination Site Report was submitted for this site to SCDEH in 1987. Since then, extensive investigation, which includes hydrogeologic assessment, installation of monitoring wells, and groundwater remediation systems, is continuing at this site. A groundwater monitoring plan is being implemented. Free product was found in several monitoring wells. After performing extensive groundwater remediation, the SCDEH has agreed that further soil and/or groundwater remediation would be requested only if the degree of contamination observed in the monitoring wells increases.

Wood Cadillac, 2925 Corby Avenue: A report from Trans Tech Consultants dated November 17, 1992 concerning this facility indicates that two underground storage tanks were removed from the site. Soil samples collected from underneath the tanks did not indicate petroleum hydrocarbon contamination. However, soil contamination was present along the underground piping, extending underneath the on-site building. Information received by the NCRWQCB from the Santa Rosa Fire Department indicates that three underground tanks were present at the site, including a 550-gallon new oil tank, a 1,000-gallon waste oil tank, and a 2,000-gallon gasoline tank. Tank removal applications were completed for all three tanks. On December 2, 1992, the NCRWQCB requested clarification from the responsible party regarding removal of all three tanks. In addition, a workplan for additional soil and groundwater investigations was requested by March 15, 1993.

Bepex Corporation, 150 Todd Road: On January 9, 1987, the NCRWQCB received notification from the SCDEH regarding removal of an underground storage tank and a fuel discharge resulting in soil contamination at this facility. A workplan for hydrogeologic
investigation of the site was requested on October 26, 1989. Investigation at this site is in progress under SCDEH lead oversight.

Murril, James, 3405 Standish Avenue: Two underground storage tanks were removed from this site in April, 1986. During tank removal, four samples collected from the tank excavation showed hydrocarbon contamination, which prompted SCDEH to request an investigation at the site to determine the extent of contamination. Field activities on January 15 and January 16, 1992 included advancement of three boreholes, installation of two piezometers, and one monitoring well at the site. Soil and groundwater investigation was performed at the site in January and October of 1992. Another monitoring well was installed on October 27, 1992. These investigations indicated that soil and groundwater were impacted due to the release. A workplan for further investigation of soil and groundwater was submitted on May 13, 1993. Investigation at the site is in progress.

Empire Waste Management, 3400 Standish Road: Out of three underground storage tanks (gasoline, diesel, and waste oil), the waste oil tank was excavated on June 17, 1988 and was found to be leaking. Chemical analyses data indicated the presence of motor oil, oil and grease, and hydrocarbons in the soil beneath the tank. In accordance with a plan approved by NCRWQCB on November 18, 1988, three boreholes were drilled on-site; two boreholes were converted to groundwater monitoring wells. Based upon the results of the investigation, additional sampling and installation of a monitoring well was requested at the site on August 3, 1989. Further investigation at the site is in progress.

Hogue Construction, 3939 Moorland Avenue: Three underground storage tanks were removed from this site. The NCRWQCB received information regarding diesel and gasoline leak at the site and requested a workplan proposing the needed work in the initial investigation to determine the threat and impact to groundwater. Site investigation involved soil and groundwater sampling. A groundwater monitoring well was installed on-site. TPH and BTEX were detected in the groundwater samples. Further investigation at the site is in progress.

McMinn Avenue Superfund Site

The McMinn Avenue State Superfund Site encompasses an area with a radius of approximately 2,000 feet in the vicinity of the intersection of Sebastopol Road and Roseland Avenue/McMinn Avenue. In 1984, the Department of Toxic Substances Control designated a 2,000-foot radius around the intersection of McMinn Avenue and Sebastopol Road as a Local Study Area and a one-mile radius around that intersection as the Regional Study Area.² Figure 3.1.8-2 provides an overview of the Regional Study Area and the Local Study Area. Groundwater contamination was detected in private drinking water wells in the area. Gasoline vapors were detected in the sewer system in the vicinity of Sebastopol Road between West Avenue and McMinn Avenue. As a result a Local State of Emergency was issued by Sonoma County on March 31, 1992.³ Detected contaminants include components of gasoline and diesel (benzene and 1,2-dichloroethane) and compounds used in solvents
and the manufacture of synthetic materials (1,2-dichloroethane, vinyl chloride and tetrachloroethylene). A Technical Assistance Team (TAT) has prepared a workplan for defining the vertical and lateral extent of the groundwater plumes.

Dames and Moore completed a soil and groundwater investigation for approximately one-mile stretch of Sebastopol Road extending from Stony Point Road to 265 feet east of Dutton Avenue in August, 1991. Nearly the entire length of the roadway extends through an area of soil and groundwater contamination. Soil borings at 21 locations were drilled in the roadway and on private property to investigate the extent of soil contamination. Results of analyses indicated total petroleum hydrocarbons (TPH) in 22 of the 44 samples at concentrations ranging from 69 to 1700 parts per million (ppm). Results of analysis for volatile organic carbons (VOCs) indicated benzene in one sample at a concentration 290 parts per billion (ppb) and toluene in the same sample at a concentration of 1000 ppb, xylenes in eight samples ranging from 7.6 to 17,000 ppb, and ethylbenzene in two samples ranging 1300 to 1800 ppb. Tetrachloroethene (PCE) was detected in one sample at a concentration of 5.3 ppb. Results of analyses also indicated concentrations of lead ranging from below detection limits to 44 ppm.

Analysis of groundwater samples from monitoring wells installed by Dames & Moore indicate TPH concentrations ranging from below detection limits to 13 ppm. Benzene (160 - 14,000 ppb), toluene (36 - 4,400 ppb), ethylbenzene (34 - 1,200 ppb) and xylenes (130 - 7,400 ppb) were also present in the groundwater samples. Other VOCs detected in one monitoring well (MW10) included PCE (28 ppb) and vinyl chloride (68 ppb). A one-foot thick layer of floating product was measured in MW7, which is located near a known source of hydrocarbon contamination.

The North Coast Regional Water Quality Control Board (NCRWQCB) has identified 33 locations where responsible parties have been directed to conduct investigative and cleanup activities. Figure 3.1.8-1 includes the location of these sites. A discussion on each of these 33 sites, based upon the information obtained from the NCRWQCB, is presented below.

Acme Auto Wreckers, Inc., 1885 Sebastopol Road: The Acme Auto Wreckers site has been an active auto wrecking and dismantling yard since 1956. In addition to stockpiling autobody parts for resale, past activities have included draining of fluids from auto engines to soil and on-site steam cleaning of auto parts for resale. RWQCB staff investigations note observations of significant soil staining throughout the entire parcel. On April 6, 1990, a nearby domestic well located at 1834 Rose Avenue was sampled and found to contain 3,530 ppm oil and
grease, 20 ppb 1,1-Dichloroethane (DCA) and 30 ppb 1,1,1-Trichloroethane (TCA). Subsequently, a workplan to investigate the horizontal and vertical extent of soil contamination was requested by the RWQCB. A workplan for the installation of soil borings was submitted on September 10, 1991.

Significant delays occurred in the implementation of the workplan. On September 21, 1992, the NCRWQCB issued Cleanup and Abatement Order No. 92-124. In response to the Order, the workplan was implemented on October 7, 1992.

**Almetco Inc., 1733 Sebastopol Road:** Almetco Inc. conducted aluminum frame fabrication in the past. Unauthorized releases of hydrofluoric acid and chromic acids have occurred from on-site storage, use and disposal practices of these chemicals. RWQCB issued a Cleanup and Abatement Order No. 86-195. Cleanup and investigation did not occur in compliance with the terms of the order. In February of 1987, Almetco filed for protection under Chapter 11 bankruptcy proceedings. A complete site assessment is still needed for this site. The Cleanup Order is being revised and the responsible parties will be directed to further investigate the discharges under the revised Cleanup Order.

**BP/Redwood Oil, 760 Sebastopol Road:** Contamination at this site was first discovered when a soil gas survey and groundwater sampling indicated free product. The DTSC later installed a monitoring well, MW7, in the public right-of-way near the site as part of their Phase I Remedial Investigation for the McMinn Superfund Site. Monitoring of MW7 revealed over nine feet of gasoline floating on groundwater. Cleanup and Abatement Order No. 90-42 was issued in March, 1990 and remains in effect. The responsible party has installed six additional wells on-site and off-site. The direction of groundwater flow fluctuates from west-northwest to west-southwest. Contaminants present in groundwater samples include TPH-G, BTX&E, organic lead, various chlorinated solvents and nitrates. The contaminant plume has migrated off-site in the southwesterly direction underlying West Avenue. The extent of groundwater contamination has not been fully delineated. A free product recovery system has been installed and is reducing the volume of free product in wells. A groundwater remediation system for treating the dissolved phase petroleum constituents is currently being planned.

The responsible party is also investigating off-site areas. Groundwater gradient information indicates that high levels of chlorinated solvents may be originating from somewhere other than the BP site. Overlapping plumes may exist in the area. Further investigation is required.

**Wilson Baugh Enterprises, 805 Sebastopol Road:** This site had three underground storage tanks and one waste oil tank removed in 1988. During tank excavation, holes were noted in the bottom of the waste oil tank, and soil sampling results confirmed that a release had occurred at the site. DTSC installed Monitoring Well (MW) 4 in the public right-of-way along the Sebastopol Road during the Phase I Remedial Investigation for the McMinn Superfund Site. Groundwater samples from MW4 were found to contain elevated levels of petroleum constituents including TPH-G, TPH-D, BTX&E, and chlorinated solvents. A preliminary site investigation was requested.

**Beacon Service Station, 921 Sebastopol Road:** Petroleum constituents were detected during DTSC installation of MW10, which is located in the sidewalk of Sebastopol Road in front of the gas station. A groundwater investigation confirmed that petroleum release had occurred.
Underground storage tanks are still in place and have not been excavated. Three monitoring wells were installed and soil gas survey performed. Results of the soil gas survey indicate elevated levels of TPH-G and BTX&E in the backfill materials and soils around the tanks. Groundwater monitoring reports indicate that petroleum hydrocarbons are present in all four monitoring wells. Levels in one well ranged from 45,000 to 110,000 ppb for gasoline and 1,300 to 5,500 ppb for benzene. The source of the contamination and southern extent of the plume have not been determined yet. Three additional monitoring wells and one soil boring are to be installed to further define the extent of contamination.

In March of 1992, following heavy rains, gasoline vapors were detected in businesses, residences, and the sanitary sewer in front of the Beacon gas station. Emergency measures were taken by numerous public agencies to ensure public health and safety. A local State of Emergency was declared on March 31, 1992. The NCRWQCB issued an immediate Cleanup and Abatement Order requiring the immediate abatement of petroleum releases from the property. During the investigation a line leak was found at the Station. Immediate measures were implemented to stop the infiltration of petroleum products into the sanitary sewer. The station was subsequently renovated to repair and replace the underground lines and tanks. A groundwater remediation system and a soil vapor recovery system were installed. The NCRWQCB is continuing investigation at this site.

Bevan Investment, 995 Sebastopol Road: Underground tanks at this site were used for diesel and gasoline storage. Contamination was discovered during the tank excavation and verified through soil sampling. A groundwater monitoring well was installed. Water samples indicated elevated levels of TPH-G, TPH-D, benzene, toluene, xylene and ethylbenzene. In addition, two inches of free product was reported in the on-site monitoring well. The extent of soil and groundwater contamination needs to be further defined. The NCRWQCB issued a letter requesting additional historical information on past owners and operators for the site. A Cleanup and Abatement Order was to be issued after evaluating this information.

Kevin Chang, 1580 Hampton Way: The property contained a waste oil tank which was excavated and removed in February, 1988. Soil samples collected during tank excavation activities contained oil and grease and toluene. A workplan to install soil borings was approved by the NCRWQCB in November 1990, but was not implemented. On December 2, 1991, the NCRWQCB received a letter of intent stating that a new workplan would be submitted and would include the installation of monitoring wells. The workplan was implemented and one monitoring well was installed. Results of the investigation indicate that two on-site domestic wells are impacted by chlorinated solvents. The NCRWQCB is overseeing the site investigation as the lead agency.

Continental Baking, 1840 Sebastopol Road: An unauthorized release was discovered at this site during excavation of a diesel tank. A preliminary site assessment was requested, but was not performed. The responsible party was notified again that an investigation was needed at the site.

Cottage Bar, 1099 Sebastopol Road: This site was formerly a gas station. The NCRWQCB is evaluating historic information for possible further investigation of this site as a source area for the regional groundwater contamination. The U.S. EPA will be installing a soil boring near the site to further investigate possible fuel releases from the past service station uses.
Exchange Bank, 330 Sebastopol Road: Soil analysis following tank removal activities indicated a minor release of petroleum. A preliminary site assessment has been requested. In response, a workplan has been submitted by the responsible parties.

Frontier Electric, 1599 Hampton Way: Groundwater samples collected during tank excavation activities indicated contamination in levels of 2,700 ppb TPH and 840 ppb benzene at this site. The RWQCB has requested a cleanup and investigation of the site. The investigation has not proceeded due to financial limitations of the responsible parties.

Tom and Jeff Harriman, 375 Sebastopol Road: A gasoline storage tank was removed from this site in December of 1988. Soil sampling results indicated that a release had occurred. Cleanup and Abatement Order No. 90-55 was issued to the responsible parties. Five monitoring wells were installed. Groundwater contamination was detected in two wells near the former underground tank. Groundwater flow direction is in a west-southwest direction. A workplan for the installation of six on-site hydropunch borings to further define the extent of soil and groundwater contamination was reviewed by the RWQCB staff and a workplan addendum was requested prior to implementing field work. Following the issuance of a Revised Cleanup and Abatement Order No. 92-86, the workplan was implemented in July, 1992. Results of the investigation indicated contamination below depths of seven feet near the former tank area. A Corrective Action Plan was requested.

Laidlaw Transportation, 959 Sebastopol Road: The Laidlaw Property has been used as a maintenance and storage yard for motor vehicles for last 30 years. In December 1987, a 550-gallon waste oil tank was removed from the site. Petroleum constituents were found in soil and groundwater samples collected during tank excavation. DTSC installed a monitoring well, MW5, at the site near the former waste oil tank as part of the Phase I Remedial Investigation of the McMinn Superfund Site. Two additional wells were installed by the responsible party. The RWQCB issued a Monitoring and Reporting Program No. 89-162, which was implemented and the results indicated that detectable concentrations of contaminants were not present in groundwater near the former waste oil tank. On August 29, 1990, the RWQCB informed the responsible party that no further work would be required for this release. Currently, Laidlaw operates two underground tanks for fueling busses. No known releases have been reported.

James Murrill Trucking, 439 Sebastopol Road: Monitoring well MW1 was installed by DTSC near an underground storage tank during their Phase 1 Remedial Investigation. Groundwater sampled from this well did not detect levels of contaminants for the constituents analyzed. No further sampling or investigation has been requested by the RWQCB.

Nor-Cal Glass Company, 637 Sebastopol Road: Two underground storage tanks were removed in 1986 from this site. Subsequent soil samples indicated TPH-G at 11 and 3,330 ppm. Four monitoring wells were installed. Groundwater gradient has been reported towards the northwest. Low levels of contaminants in the groundwater have been monitored for two years. The responsible party has requested site closure and well abandonment. In response to this request, further sampling and verification has been requested by the SCDEH. The site was referred to the NCRWQCB for lead agency oversight of the investigation.

Optical Coating Laboratories, Inc., 977 Sebastopol Road: Prior to construction of the Giffen Avenue facility, OCLI maintained a mailing address at 977 Sebastopol Road. The
NCRWQCB requested additional historical information regarding past operations at this site based upon their knowledge that OCLI may have had operations at this address as well.

Point Saint George Fisheries, 8 Sebastopol Avenue: A Cleanup and Abatement Order was issued to Point Saint George Fisheries in response to discharges of seafood processing wastes and petroleum products on-site. Four monitoring wells have been installed on-site. The general direction of groundwater flow has been reported to the south-southwest. Groundwater monitoring is not being conducted. The RWQCB is reviewing the site to determine if further work is needed.

Redwood Oil Bulk Plant, 258 Roseland Avenue: This facility operated with nine above-ground tanks and four 40,000-gallon underground storage tanks. In 1988, DTSC installed an on-site monitoring well, MW8. Monitoring activities revealed over eight feet of free product floating on the groundwater beneath the facility. The RWQCB issued a Cleanup and Abatement Order in 1990. Twenty soil borings and ten additional monitoring wells have been installed on-site to determine the extent of contamination. In March, 1991, a free-product recovery system was installed which has significantly reduced product thickness to less than one foot.

The RWQCB has adopted an NPDES permit for installation of a groundwater extraction and treatment system to remediate the dissolved phase contaminants. The responsible parties for the site are continuing to define the extent of the plume and have proposed the installation of six off-site monitoring wells. In addition, the existing wells are sampled quarterly and depth to water is measured monthly. The groundwater flow direction at the site is towards northwest.

Reubens Tacos, 565 Sebastopol Road: According to the NCRWQCB the Reubens Tacos site was formerly a Mobil Service Station. The underground storage tanks were removed in 1977. Currently, Mobil is conducting a record search regarding this location. The NCRWQCB is also evaluating historic information for further possible investigation of this site as a source area for the regional groundwater contamination.

Roseland Paint Center, 1160 Sebastopol Road: DTSC installed a shallow and deep well/boring pair, MW3/MW9 along the public right-of-way on the southern boundary of this site. A water sample collected from the shallow well, MW3, showed detectable levels of hydrocarbons. No contaminants were detected in MW9. As per RWQCB staff request, additional site-specific information has been submitted which is currently under review to determine if further work would be needed.

Shell Service Station, 255 Dutton Avenue: Quarterly monitoring reports from this site indicate that a serious release to groundwater has occurred. Eleven monitoring wells have been since 1989. Seven of these 11 wells have free product floating on the groundwater. Additional contaminants include TPH-G, TPH-D, BTX&E, and oil and grease. Groundwater flow directions are towards west/southwest. The responsible party is continuing to fully define the extent of soil and groundwater contamination. An interim free product recovery system is planned for near future.

Shell, DZ Inc., 257 Dutton Avenue: This facility consists of 11 underground tanks and five above-ground tanks. The first reported release occurred at the facility in 1975 and involved
the spillage of an unknown quantity of petroleum products in the vicinity of the tanks. Heavy hydrocarbon contamination was observed in soil in 1989 which instigated RWQCB request for a hydrogeologic investigation to determine the extent of contamination at the site. In June, 1990, three groundwater monitoring wells were installed. Groundwater was found to be affected by the fuel product release. Monitoring well, MW2, installed at the site as part of McMinn Superfund Study, had free product with an estimated thickness of at least three feet. Currently, the responsible party is investigating the extent of soil and groundwater contamination. The RWQCB staff is preparing to issue a cleanup and abatement order for the facility.

**Slakey Brothers, 1289 Sebastopol Road:** A single underground storage tank, used for fueling company vehicles, was excavated in 1986. Low levels of TPH-G and BTX&E was found in soil and groundwater. A workplan to investigate the extent of release including the installation of four monitoring wells was approved by the RWQCB in July, 1991. The workplan was implemented in March, 1992. Monitoring well analyses show contamination by petroleum hydrocarbons as gasoline, diesel and chlorinated solvents.

**Taylor Bus Company, 1175 Sebastopol Road:** In 1985, six underground storage tanks were removed from this site. No soil samples were collected at that time. In 1988, DTSC installed monitoring well MW11 in front of the site. Two additional wells were installed by the responsible party. Groundwater samples from these two wells indicated that the groundwater had been impacted. Financial constraints have delayed further investigation at the site. The responsible party has applied for financial assistance.

**Texaco, Bill’s, AKA Zedrick’s, 1980 Sebastopol Road:** This site, operating as service station, had five underground storage tanks. A serious release of petroleum products occurred at the site. Cleanup and Abatement Order No. 89-144 required the investigation and cleanup of the site. Submitted soil and groundwater investigation reports indicate that up to three feet of floating product has been encountered in monitoring wells on-site. The groundwater flow direction is towards the southwest. Contamination has migrated off-site to the west, southwest and south, beneath Stony Point Road. The plume may also have migrated off-site to the north and east beneath Sebastopol Road. The full extent of contamination is yet to be defined. On August 21, 1990, three domestic wells, closest to the former gas station, were sampled and were found free of fuel hydrocarbon contamination at the time of sampling. Due to numerous delays in required investigation, other possible enforcement actions are being evaluated. A public hearing to assess the possibility of Administrative Civil Liabilities is planned if additional noncompliance occurs. Cleanup and Abatement Order No. 89-144 is currently being revised to reflect progress achieved thus far and to direct further cleanup.

**Triple S Tires, 1124 Sebastopol Road:** The NCRWQCB received an unauthorized release form for this site in May, 1992, and requested additional information to determine if the unauthorized release is a threat to water quality. After review of the submitted data, the NCRWQCB staff determined that additional work should be conducted at the site.

**Unocal #4320, 370 Sebastopol Road:** Two gasoline tanks and one waste oil tank were excavated from the south-southwest corner of this site. During excavation, it was apparent that a substantial release had occurred. Eight monitoring wells and five soil borings have been drilled at the site. Contamination present in soil and groundwater included TPH-G,
TPH-D, BTX&E, Oil and Grease and chlorinated solvents. Unocal is continuing to define the extent of contamination and plans to install ten hydropunch borings.

**Talmadge Wood, 1594 Hampton Way:** During a routine tank removal, holes were noted in an underground storage tank located on this property. Cleanup and Abatement Order No. 90-16 was issued to responsible parties for further investigation of the unauthorized release. Three groundwater monitoring wells have been installed on-site. Contaminants present in the groundwater included 57 ppm gasoline, 190 ppb benzene, 370 ppb toluene, 6,700 ppb xylene and 960 ppb ethylbenzene. The NCRWQCB has received and approved plans to further define the extent of contamination. The workplan has been implemented.

**Yellow and Roadway Freight, 270 Dutton Avenue:** During excavation of two underground storage tanks at this site, low levels of contaminants were detected in soils around the tanks. Four monitoring wells and two soil borings were installed to determine the impact to groundwater from the release. Low levels of TPH-G and BTX&E were detected in groundwater during early monitoring events. Petroleum constituents were below detection limits during later monitoring events. The SCDEH, being the Lead Agency, recommended closure of this site, and the NCRWQCB staff concurred. All existing monitoring wells were abandoned under direction of the SCDEH. On April 22, 1992, the site was closed and no further investigation related to the tank release was required.

**Dave Zedrick, 111 Sebastopol Road:** Four underground storage tanks and surrounding soils have been excavated from this site. Six monitoring wells have been installed. Contaminants detected in groundwater include TPH-G, TPH-D, BTX&E, and chlorinated solvents. Waste Discharge Requirements have been issued for groundwater remediation, however, the groundwater remediation system is not currently in operation. The NCRWQCB approved a workplan for installation of three upgradient monitoring wells, and requested information on the status of on-site groundwater remediation efforts. The monitoring wells were installed and showed groundwater contamination. The responsible party is continuing to investigate additional off-site source areas.

**C&D Batteries Division, 265 Roberts Avenue:** This facility operated as an industrial lead acid battery manufacturer from 1963 to 1983. In 1980, C&D notified the U.S. EPA that the facility was involved in hazardous waste activity and was subsequently marked as a hazardous waste generator. In addition, the facility operations formerly included neutralizing sulfuric acid and discharging to the sewer. The facility ceased operations in 1983 and was certified clean-closed in 1985. The U.S. EPA conducted a preliminary site assessment in 1990, and indicated that further work could be necessary. Currently, there are concerns regarding the possible impact to groundwater at the site since the closure evaluation did not include sampling of the vicinity of an underground sewer pipe which may have corroded and leaked. The NCRWQCB is evaluating the possible need to further investigate the facility.

**Shamrock Materials, 285 Roberts Avenue:** A 5,000-gallon underground storage tank was closed in-place on September 24, 1986. Soil samples taken during site closure showed 34 ppm TPH in soil. A workplan for preliminary site assessment was received and reviewed by the SCDEH. Further investigation is needed at the site which will continue under oversight by the NCRWQCB.
Withers Car Wash, 1450 Sebastopol Road: The car wash was constructed in the mid to late 1960's. Two underground tanks were installed at or subsequent to the time of construction. The tanks, which formerly contained gasoline and diesel fuels, were removed from the site in 1986. No hydrocarbon odor was noted at the time of tank removal. Soil samples taken during excavation showed elevated levels of hydrocarbons only beneath the diesel tank. A workplan for hydrogeologic assessment to determine any threat or impact to groundwater was prepared in response to NCRWQCB request. Two boreholes, with one converted to a monitoring well, were installed on-site. Groundwater samples and elevation information were collected over a hydrologic cycle. Results of the analyses indicated contaminants to be below detection limits. In September 1989, the NCRWQCB determined that no further work would be required at this site. Following site closure, the NCRWQCB received notification in April of 1990 that the monitoring well had been abandoned.

Optical Coatings Laboratory Inc.

Optical Coating Laboratories, Inc. (OCLI) manufactures thin film coatings for optical devices and is located at 2789 Northpoint Parkway. The facility began operations in 1959. Between 1959 and the present time, operations involved the use, storage, and disposal of various chemicals at the site. During this period, an unknown quantity of solvents and other chemicals were discharged to soils, groundwaters, and surface waters at the site.

In 1988, two on-site irrigation wells were found to be contaminated with halogenated volatile organic chemicals. In response to a NCRWQCB request, OCLI commenced a groundwater investigation program in February, 1988. The investigation involves multiple aquifers: the A zone aquifer located between ground surface and 30 feet depth, the B zone aquifer located approximately 40 to 50 feet below ground surface, the C zone aquifer located approximately 55 to 110 feet below ground surface, and the D zone aquifer located approximately 120 to 145 feet below ground surface. Contamination has migrated into all four aquifers. The two on-site irrigation wells were properly abandoned in 1989.

The facility overlies shallow groundwaters and is located near the Roseland Creek tributary to the Laguna de Santa Rosa and the Russian River. The shallow groundwaters discharge to Roseland Creek and chlorinated volatile organic chemicals have been found in Roseland Creek adjacent to and downstream from the facility. The areal groundwater supports domestic, agricultural, and industrial water supplies. The nearest domestic well is located approximately 100 feet to the east of the site and is contaminated with halogenated volatile organic chemicals. Domestic wells are also located north, south, and west of the facility and are screened in various aquifers, including the A, B, C, and D zones.
On September 1, 1988, the NCRWQCB issued Cleanup and Abatement Order No. 88-122 to require investigation and cleanup of the contaminated groundwater. On September 28, 1989, the NCRWQCB revised this Order and issued Cleanup and Abatement Order No. 89-121. The revised Order required investigations of surface waters contaminated by the discharge of solvents at this site. On May 25, 1990, Cleanup and Abatement Order No. 90-108 was issued revising Order No. 89-121. The revised Orders reflected the progress of the investigation and required additional tasks for investigation. On May 23, 1990, the NCRWQCB issued Waste Discharge Requirements to OCLI for an interim cleanup system to control the contaminated groundwater infiltrating into the stormdrain pipeline adjacent to the facility.

Since 1988, OCLI has conducted investigations to define the extent of groundwater contamination. OCLI has installed approximately 55 to 65 monitoring wells through all four aquifers and seven recovery wells for interim cleanup of groundwater contaminated with volatile halogenated organic chemicals including 1,1-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and Freon 113. Findings from the investigations of the nearby Roseland Channel and the stormdrain network surrounding the OCLI facility indicated that contaminated groundwater migrates into the stormdrain network during period of high groundwater. This contaminated groundwater flows through the stormdrain system and discharges to Roseland Channel. During May-June 1989, contaminants were found as far as 4,000 feet from the site.

OCLI has installed seven extraction wells along the stormdrain system located along their north property line. The extraction wells are placed to lower the groundwater table elevation to below the elevation of the inside of the stormdrain pipe to prevent contaminated groundwater from entering the stormdrain system and discharging to Roseland Creek. An air stripping treatment system has also been installed to remove volatile organic chemicals from contaminated groundwater.

The facility is performing groundwater monitoring under the "Revised Monitoring and Reporting Program No. 91-151" issued to OCLI on September 16, 1991 by the Regional Water Quality Control Board. Ongoing monitoring has detected concentrations of halogenated organic chemicals in the groundwater in excess of water quality objectives designed to protect domestic water supplies. Various contaminants that exceeded drinking water standards are 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, trans-1,2-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, and carbon tetrachloride. Data indicates that groundwater
contamination has migrated off-site more than one-third mile and involves at least the upper four aquifers. Soil contamination has been detected at one to nine feet below the surface. Volatile organic carbons (VOC) plumes have been identified beneath the facility as part of the groundwater monitoring program. Figure 3.1.8-3 shows the VOC plumes in the three aquifer zones.

Cleanup and abatement activities remain to be performed at the site. These activities include defining the off-site groundwater contaminant plumes to the north and east of the site, determining the vertical extent of contamination, determining the western boundaries of the contamination, and designing the final cleanup remedy. A revised Cleanup and Abatement Order No. 93-71, replacing Order No. 90-108, was issued on June 28, 1993. The Order requires complete identification of the extent of contamination, further interim cleanup solutions, and a time schedule for ultimate submittal of the final cleanup remedy. A revised Monitoring and Reporting Program No. 93-71 was also incorporated into the Cleanup and Abatement Order.

Former Naval Air Station Properties

The Santa Rosa Naval Air Auxiliary Station (SRNAAS) was built by the Federal Government during World War II as a military training base. The primary purpose of SRNAAS was to train pilots. The base was used during World War II and the Korean War. The base was deactivated in the 1950s. The property consisted of several parcels, some of which were transferred by the Federal Government, some of which were transferred to various Federal agencies, two of which were sold to Santa Rosa Airport Associates (SRAA), and the remainder of which were sold to third parties. Such transactions occurred over a period of several years. Today, the majority of the area is owned by Santa Rosa Associates II (SRA2). Use of the airport ceased in early 1992.

The potential contaminant source areas within the facility include up to 36 underground storage tanks, a sewage treatment facility, oxidation beds, underground oil-water separators, sumps, an incinerator, above-ground tanks and drum storage areas, three underground concrete vaults, and at least two landfill areas.\textsuperscript{10} Investigation of the entire 498 acres will proceed by several responsible parties including the Department of Defense under the Formerly Used Defense Sites (FUDS) program. The RWQCB is working with the Army Corps of Engineers on investigative and cleanup issues of this facility.\textsuperscript{11}
Some of the underground storage tanks were removed; however, contaminated soil remains at the site. Seven underground storage tanks were removed from the site on May 30, 1990. The Army Corps of Engineers is the party responsible for cleanup of this release. Two 10,000-gallon underground storage tanks were removed on March 11, 1992. Free product on the surface of groundwater during excavation of these two tanks, along with a heavy odor of gasoline, was observed (see Appendix F for further information on this matter).

On July 29, 1992, the NCRWQCB approved a workplan for the excavation of contaminated soils and the installation of monitoring wells in the area of the removed 10,000-gallon underground storage tanks. In April, September and October of 1992, soil excavation activities occurred in conjunction with the former tanks. However, the monitoring wells approved on July 29, 1992 have not been installed. On July 6, 1993, the NCRWQCB issued another letter to the responsible party requesting soil and water investigation at SRNAAS.

In addition, property owned by Santa Rosa Associates used several of the underground tanks during the operation of the airport. The investigation of the release from these tanks is being conducted by Santa Rosa Associates II. During September, 1992, additional soils were removed from the tank excavation, and three monitoring wells were installed.

The Army Corps of Engineers has completed preliminary work at the sewage treatment plant area with the installation of three monitoring wells. No hydrocarbon contaminations were found within the area of investigation for the sewage treatment plant. The shallow groundwater gradient has been calculated as flowing to the south. Decontamination water and purge water are stored in drums in the treatment plant area. The NCRWQCB has requested proper disposal of stored water as soon as feasible, as well as submittal of a time schedule for sampling the contents of the drums and the proposed date for proper disposal subsequent to sampling. The NCRWQCB also issued a Monitoring and Reporting Program No. 93-40 for the decommissioned sewage treatment plant.

The NCRWQCB is pursuing the required investigation at the site since September, 1989. On March 1, 1993, the NCRWQCB requested scope of the future site investigation and time schedule for implementing the work at SRNAAS. The Army Corps of Engineers informed the NCRWQCB on March 3, 1993 that the projects were on hold due to funding cuts for FUDS until December 1993. Their Fiscal Year 1994 Workplan submittal includes funding requests. The Army Corps of Engineers
also mentioned in their letter that cleanup of the contamination would most likely be a multi-year program and would probably not start before Fiscal Year 1995 at the earliest since this project is low on the list of nationally prioritized contamination projects.

As discussed above, various investigations at the Former Naval Air Station Properties are in progress under the lead oversight of NCRWQCB. These properties are listed on the Active Toxic Site Investigation List of the NCRWQCB. Review of file records at the NCRWQCB Office provides indications that the cleanup and remediation activities at the Air Center Properties are incomplete. Since soil and groundwater investigations at various locations within the property boundaries are yet to be completed, it is not possible to accurately delineate the problem areas. Therefore, for the purposes of this EIR, the Naval Air Center Properties are treated as a contaminated site.

Information obtained from the agency files on the remaining sites in the Southwest Plan Area are presented below.

Fouche Auto Wreckers, 2290 Dutton Avenue: The NCRWQCB inspected the facility on October 10, 1989 in response to a complaint regarding the discharge of waste oil and gasoline to soil and the potential threat to groundwater. Violations involving the discharge of hazardous wastes such as waste oil, gasoline, and lead-acid batteries were observed. Soil contaminated with waste oil was observed in several areas of the facility. Waste oil discharges were most obvious in the frontal parcel where auto receiving, crushing, and shipping occurred. In addition, the southern section of the property had oil contaminated soils, and petroleum sheens on rainwater puddles. Several damaged, partially crushed, and completely crushed lead-acid auto batteries were found scattered throughout the wrecking yard.

After the inspection, the NCRWQCB staff sent letters to the responsible parties advising them of the observations of the discharge of hazardous wastes to the soil at their wrecking yard. The responsible parties were requested to perform a hydrogeologic assessment and prepare a workplan to address the contamination at the facility. On May 29, 1990, the workplan was submitted after several requests by the NCRWQCB staff.

On February 26, 1993, the NCRWQCB received another complaint concerning contaminated stormwater runoff leaving the facility. Inspection of the facility by several agencies verified the discharge of contaminated stormwater runoff to adjacent properties and drainage ditch. On February 26, and 27, 1993, water and soil samples were taken from the facility and adjacent properties to verify the discharge of contaminated stormwater. Laboratory analyses of these samples confirmed the discharge. Contaminants in the stormwater runoff puddles located in the facility driveway included gasoline components and diesel. The sampled stormwater that originated at the facility contained both free product gasoline and oily sludge. Oil and grease contaminants predominated in the drainage ditch. All worms and aquatic life in the puddles and ditch were dead. Additionally, grasses growing adjacent to or in these areas were dying or dead.
Stormwater runoff from the adjacent properties of this facility discharges to surface waters of the State and eventually enters Colgan Flood Control Channel. Investigations at this facility are in progress.

**Posada, Juan, 840 Brittain Lane:** The NCRWQCB received information concerning surface soil contamination in relation to the unpermitted auto repair business at this site. Obvious soil staining was observed on August 27, 1992, by Santa Rosa Fire Department. A workplan has been requested for the investigation of the extent of soil contamination and site remediation.

**Cheechov, Richard and Steven, 3883 Finley Avenue:** An investigation on November 5, 1991 at this site revealed two improperly abandoned water wells that had unprotected well casing openings. Also, rusting paint cans were observed inside the southwestermost well casing. The responsible party was requested to submit a workplan for the initial investigation of this site by January 16, 1992 to determine the threat and/or impact to the groundwater. Investigation at this site is in progress.

**Mosley, Bill, 3925 Finley Avenue:** Results of sample analyses of a well at this site indicated levels of some chlorinated industrial solvents in excess of detection limits. However, none of the chemicals found were in excess of State Action Levels established for the protection of public health for drinking water. The NCRWQCB informed the property owner that all necessary actions would be taken under Santa Rosa Air Center Groundwater Investigation Program to ensure that an appropriate cleanup plan is implemented to treat the contaminated aquifer and to restore the beneficial uses of the groundwater.

**Prestige Lincoln Mercury, 2979 Corby Avenue:** A letter in the file for this site, written by the NCRWQCB on February 4, 1993, concurs with the latest technical report on the site (not found) and recommended that the extent of groundwater contamination be further defined and made recommendations for sampling and analyses. This is the most recent correspondence observed in the files. Further groundwater monitoring is required of the responsible party.

**Pacific Gas and Electric, 3950 Finley Avenue:** A letter in the file for this site, written by the NCRWQCB on June 20, 1989, requests a work plan for hydrogeologic assessment on the site. No reports were found in the file and this letter represents the most recent correspondence with the responsible party.

**Santa Rosa Meat & Poultry, 940 Ludwig Avenue:** One 500 gallon tank used for leaded gas was removed from the site on January 20, 1987. The excavation was visually inspected by a County Sanitarian from the Public Health Department and determined to be visually acceptable. The tank was then removed and sold for scrap. Soil samples were taken from the site of the removed tank and analyzed for appropriate contaminants. The soil samples showed signs of hydrocarbon concentrations and the responsible party was asked by the Public Health Department to complete and submit a leak form. On March 16, 1987, the NCRWQCB sent a letter to Sonoma County to ensure that the County was aware of the reported discharge. In August of 1989, the NCRWQCB sent a letter to the responsible party confirming the response of the Health Department letter requesting the need for further work. Records in the file do not indicate that any further work was completed. In January of 1991, attorneys for the responsible party disputed the need for additional work, indicated
the efforts of the responsible agency in compliance, and further noted that the client is unprepared for such costs at this time. No additional records were observed in the file that indicate that the responsible party has provided the additional investigations required by the responsible agencies.

Zelco Cabinet Manufacturing, 298 Robles Avenue: Zelco removed a 550 gallon underground storage tank from the northeast portion of the site in July, 1989. The tank was previously used to store regular leaded gasoline. Soil samples taken after removal showed low levels of gasoline contamination. Of three soil samples taken at the excavation, two samples had TPH-G contamination. Water samples taken at this time detected TPH-G in the groundwater sample and BTEX was detected in another sample. Excavated soils were encased in a plastic tarp and stockpiled on the site. The excavation was later backfilled and compacted after the testing indicated very low levels of TPH-G. The Sonoma County Public Health Department asked for additional groundwater testing that was performed on July 29 and 30, 1991. During this testing, four groundwater wells were installed and 16 soil samples were taken. No contamination was noted at this time. Of the four wells tested, two wells contained low levels of TPH-G. In August of 1993, the NCRWQCB responded to a Sonoma County Department of Health request that the monitoring wells be properly abandoned prior to closure. Once documentation has been provided to the responsible agencies, closure will be authorized. A final letter of September 3, 1993, from the Sonoma County Public Health Department to the responsible party indicates that no further investigations or remedial action is necessary at this time and that the monitoring wells should be destroyed.

Pacific Bell, 3260 Sebastopol Road: One underground storage tank that was located in the southwest portion of the site was removed on December 21, 1990. This tank was installed in 1985 by Pacific Bell and had precision tests annually with no indications of leaks during this time. A groundwater sample was taken at the time of tank removal and was found to have no detectable levels of TPH-G and D or BTEX, but did have concentrations of oil and grease which probably came from the removal of the tank. A subsequent groundwater test of the excavation on January 18, 1991 had no detectable quantities of TPH-G and D or BTEX or oil and grease. The responsible party requested closure by the NCRWQCB. On June 24, 1991 the NCRWQCB sent a letter to the responsible party indicating that no further investigation is warranted at this time.

J.E. McCaffrey Company, 365 Todd Road: The site has 14 underground storage tanks. Four tanks are above ground in the southeast portion of the property; ten others are located in the western portion of the site in a tank pit. In January 1991 the 14 tanks were tested and determined to be tight. All of the tanks were in use at this time. A site investigation for the subject property was performed by the responsible party on June 11, 1991. The investigation included 13 soil borings and 27 soil samples that were tested for TPH-G and D and BTEX. The investigation indicated that 8 of the 27 samples yielded over 100 ppm of TPH-G (up to 3,800 ppm of TPH-G). Seven samples had levels between 1.1 and 71 ppm of TPH-G and BTEX concentrations. In addition, 4 samples had detectable levels of diesel concentrations (between 9.2 and 570 ppm TPH-D). The report recommended further studies to be performed including a groundwater extraction system and additional groundwater information (gradient, flow direction). The file contains two recent requests (January 15, 1992 and June 25, 1993) from the Public Health Department requesting an overdue work plan to be submitted within 14 days of the receipt of the letter. No corresponding work plans were found in the file in September, 1993.
Above-Ground Hazardous Materials Storage Facilities

Above-ground Hazardous Materials Storage facilities are located in areas corresponding to existing commercial and industrial development. Information on such facilities are limited, however, presence of hazardous materials may result in spills, leaks or other incidence. Facilities or businesses where hazardous materials are stored above ground are shown in Figure 3.1.8-1. A list with names and addresses of these facilities is provided in Appendix C.

STANDARDS OF SIGNIFICANCE

For this analysis an impact is considered significant if it would create a potential public health hazard; or involve the use, production or disposal of materials that pose a hazard to people or animal or plant populations in the area affected.

IMPACTS AND MITIGATION MEASURES

Impact 3.1.8-1

Contractors and construction workers may encounter hazardous materials which may pose risk to their health. This would be a potentially significant public health risk impact. (PS)

Figure 3.1.8-4 shows potential problem areas within Southwest Area Plan. Construction activities within the problem areas may result in exposure of workers and contractors from contaminated soil, groundwater or volatile compounds. Contamination likely to be encountered would consist primarily of TPH-gasoline, TPH-diesel, and VOCs. These contaminants are known to have adverse health effects.

It is important to note that there is a potential for encountering contaminated areas outside the problem areas indicated in Figure 3.1.8-4. According to the NCRWQCB, all sources of contamination have not been identified. Subsurface investigations are chronologically lengthy and expensive. Federal, state and local agencies are involved in the investigation and cleanup activities within the Plan area. The timeframe for completion of the investigations with total cleanup of the area cannot be quantified.\(^{14}\)
According to Southwest Area Plan Safety Goals, potable water for all future development in the Plan Area would be supplied by the municipal water system. Therefore, potential for health risks to the residents after the project is implemented will be minimal.

**Mitigation Measure 3.1.8-1**

- A Site Safety Plan would be developed in accordance with OSHA regulations, outlining procedures for worker safety, personnel protective equipment, and handling of materials.

- A site specific investigation prior to start of work in the potential problem areas (Figure 3.1.8-4) would need to be conducted. The site investigation, funded and implemented by the respective project sponsor would include reviewing agency files and reports to determine the current status of the project in terms of cleanup and remediation. If the investigation reveals contamination on the site under investigation, and if construction work is to start prior to the completion of cleanup and remediation under the oversight of lead regulatory agencies, NCRWQCB, SCPHD or DTSC, the respective project sponsor would need to initiate measures to speed up the remediation process on the project site. Those measures would be developed and evaluated in collaboration with the lead regulatory agencies on a case by case basis, and would need to be in conformance with the requirements of the lead regulatory agencies. Such measures may include identifying the responsible parties, negotiating for immediate cleanup and remediation, or installing a remediation system and getting reimbursed by the responsible parties. As an example, the City is discussing measures with the NCRWQCB to proceed with Project #34.\(^{15}\)

- A plan to manage and handle contaminated soil and groundwater would be developed. The Plan would contain provisions for removal of contaminated materials (soil and groundwater), transport, and treatment or disposal.

- The NCRWQCB, DTSC, SCDEH and SRFD would be contacted immediately if contamination is encountered during construction activities.

Compliance with these mitigation measures would render Impact 3.1.8-1 insignificant. (I)

**Impact 3.1.8-2**

Development of new housing units would result in an increase in the use and disposal of household hazardous wastes by residents. This would be a potentially significant public health risk impact. (PS)

**Mitigation Measure 3.1.8-2**

1. Compliance with all applicable laws and regulations for proper handling and disposal of hazardous wastes would be necessary.
2. New development within the Plan area would be included as a participant of Joint Powers Agency for the handling, collection and disposal of hazardous wastes.\(^{16}\) (I)

Under the agreement between the Cities of Sonoma County and Sonoma County for a Joint Powers Agency (JPA) the County would provide sites free of charge at its Central Landfill Site for household hazardous waste collection and storage. The JPA would arrange for a household hazardous waste (HHW) operator to perform a collection, recycling and disposal services for participants. HHW will be received from the residents in a receiving area at the facility and will be inspected by a trained personnel to determine its acceptability. The waste received would be sorted into materials that should be disposed of and those that could be reused. Those materials that should be disposed of would be prepared for transportation to disposal facilities. Those wastes received that could be reused would be inventoried for use, exchange, reuse or shipped to a recycling facility. In addition, the JPA would develop a public education program to maximize the utilization of the HHW facility.

Compliance with these mitigation measures would render Impact 3.1.8-2 insignificant.

**Bellevue Interchange and Infrastructure**

Two sources of hazardous materials, Wood Cadillac at 2925 Corby Avenue and Prestige Lincoln Mercury at 2979 Corby Avenue, were identified in the vicinity of Bellevue Interchange. For details on these facilities the reader is referred to the "Existing Conditions" of the "Southwest Area Plan."

New construction or improvements in infrastructure has been proposed in certain areas where contamination exists. Figure 3.1.8-5 shows potential problem areas for constructing new or improved infrastructure. For details on existing conditions in these areas the reader is referred to the "Existing Conditions" of the "Southwest Area Plan."

With the available construction methods, the pipe installed as part of new construction or improvements in infrastructure is expected to be watertight to avoid any infiltration of contaminated groundwater.

**Impact 3.1.8-3**

Impact 3.1.8-3 would be the same as described for Impact 3.1.8-1.
Construction activities within the problem areas, shown in Figure 3.1.8-5, may result in exposure of workers and contractors from contaminated soil, groundwater or volatile compounds. Contamination likely to be encountered would consist primarily of TPH-gasoline, TPH-diesel, and VOCs. These contaminants are known to have adverse health effects. It is important to note that there is a potential for encountering contaminated areas outside the problem areas indicated in Figure 3.1.8-5.

Mitigation Measure 3.1.8-3

See Mitigation Measure 3.1.8-1.

Compliance with Mitigation Measure 3.1.8-1 would render Impact 3.1.8-3 insignificant.

PROPOSED PROJECTS

SETTING

Refer to the Setting discussion provided for the Southwest Area Plan portion of this section.

No sources of hazardous wastes have been identified in the vicinity of proposed projects #2, #3, #6, #7, #8, #13, #14, #16, Project #19 through Project #23, Project #25 through Project #29, Project #31, Project #32 and Project #35. Therefore, construction of these projects would not expose workers to known health risks. Project sites where sources of hazardous wastes have been identified in the area vicinity are discussed below.

Project #1: Dutton Place and Project #4: Fouche Village

Two facilities have been identified on the NCRWQCB active toxic site investigation list in the vicinity of these project areas: Fouche Auto Wreckers at 2290 Dutton Avenue and Rays Food Store at 2423 Dutton Avenue.

Project #5: Southcreek Village and Project #24: Lara Subdivision

A portion of Project #5 site is within the "Local Study Area" for the McMinn Avenue State Superfund Site, the remainder of the area is within the "Regional Study Area". Project #24 lies completely within the "Local Study Area". Soil and groundwater investigations in the area have indicated contamination with gasoline, diesel, organic compounds, and lead.
Dames and Moore collected soil samples within a distance of less than 2,000 feet of the project site as part of their Soil and Groundwater Investigation along Sebastopol Road in August, 1991. Five soil samples were analyzed for TRPH, VOCs and lead. Results of the analyses indicated that TRPH was detected at concentrations ranging from below detection limits to 900 ppm. Xylene was detected in one sample at a concentration of 8.9 ppb. Two out of five samples were analyzed for lead, and only one sample indicated lead concentration of 44 ppm. Groundwater was not encountered during the investigation, which included boring up to a depth of 5 feet, in this part of the Sebastopol Road.

Project #9: Courtside Village

Sources of above-ground storage of hazardous materials have been identified both on-site and in the vicinity of this project site. The proposed project area does not fall within the potential problem areas indicated in Figure 3.1.8-4, however, there is a potential for encountering contaminated soil and/or groundwater outside those problem areas.

Project #10: Martin Homeless Housing

A hazardous waste facility, Henris Supply at 3995 Sebastopol Road, was identified in the vicinity of this project site. In addition, there are indications of above-ground storage of hazardous materials in the area (see Figure 3.1.8-1).

A site visit indicated the presence of fill material within the project site. The source of the fill material is currently unknown. A site investigation would determine if any contaminants are present in the fill material.

Project #11: North Point Village

The project area lies southeast of the OCLI facility and has a potential of being impacted by the contamination at OCLI.

Project #12: Solarium 2010

A source of hazardous material contamination, Posada, Juan at 840 Brittain Lane, was identified in the vicinity of this project site.
Project #15: Giffen Estate and Project #17: Pero Apartments

These project sites lie to the northeast within 3,000 feet of the OCLI facility. The northern extent of the VOC plume beneath the OCLI facility has not been delineated, therefore, there is a potential that the plume has extended further north of the OCLI property.

Project #18: Burbank Housing

The project site has historically been the location of two small family-owned chemical companies. Budd Chemical Company manufactured bleach and other laundry chemicals at the site from the 1930's until 1967. From 1963 until 1989, Rosewood Chemical stored and repackaged chemicals used in cleaning pools and spas at the site.

A single-family house stands at the west end of the site. East of the house stands a dilapidated barn and two other out-buildings. The barn was used as the bleach factory by Budd Chemical Company, and later for warehousing and repackaging chemicals by Rosewood Chemical. Inside the barn there are stained areas on soil and shelves. The stains appear to be accumulations or crusts of caustic chemicals spilled or leaked from various drums and other containers which were formerly stored and handled within the building. There is a half-acre storage yard to the east of the barn. This area contains stacks of pallets, scrap lumber, sheet metal, two concrete pads, and an asphalt pad. A gravel driveway extends from the barn to the yard. A caustic chemical sump tank was removed from the north end of the yard adjacent to the barn. As informed by a former owner, sodium hydroxide and muriatic acid tanks were stored on the concrete pads. The asphalt pad was used for packaging of muriatic acid. Limestone was placed in a ditch leading from the south edge of the pad to a culvert running below the barn to mitigate any acid spills. A Budd Chemical employee once drained the muriatic acid tank onto the ground.

A 550-gallon gasoline storage tank was removed from the site in 1986. At the time of removal, the tank and surrounding soil showed no signs of leakage. Laboratory analysis of one soil sample collected from the excavation indicated total TPH as gasoline below detection limits. Sonoma County Hazardous materials Management Program certified the site as closed. In 1989, a water sample taken from hose bib was found to contain 100 parts per million (ppm) chloride and 0.57 parts per billion (ppb) toluene.
Another investigation at the site in May, 1990, comprised of drilling test borings, collecting soil samples for analysis of soil pH, and sampling well water for gasoline constituents. Soil pH analysis results varied from a low of 3.6 to a high of 10.0. Figure 3.1.8-6 shows contoured pH values for one foot of depth. The contours suggest that acid spilled from the muriatic acid tank and from the asphalt pad flowed to the southwest. A water sample was collected from the hose bib that had been previously sampled, and analyzed for TPH as gasoline and for BTEX. No parameter tested was found above the test detection limits.

Project #30: Santa Rosa Air Center

The project site is located at the Santa Rosa Air Center property and is west of the OCLI facility. Parts of the project area fall southwest of the OCLI facility.

Project #34: Southwest Fire Station

The project site lies within 1,500 feet to the east of the OCLI facility.

IMPACTS AND MITIGATION MEASURES

Impact 3.1.8-4

Contractors and construction workers may encounter hazardous materials which may pose risk to their health. This would include Projects #1, #4, #5, #9 - #12, #15, #17, #18, #24, #30 and #34 and would be a potentially significant public health risk impact. (PS)

Mitigation Measure 3.1.8-4

Implement Mitigation Measure 3.1.8-1. (I)

Impact 3.1.8-5

Removal of existing structures may result in the release of hazardous materials to the environment affecting worker safety. This could be a potentially significant impact. (PS)

The project sites for proposed Project #1-3, 5-7, 9, 10, 12, 13, 16, 18-21, 24, 25 and 28 currently contain residential and/or other structures which may be removed during site development. Based upon their age, the structures may contain asbestos, lead paint and possibly polychlorinated biphenyls.
Removal of such materials could result in accidental release of one or more of these contaminants to the environment.

Agencies which regulate asbestos are the U. S. Environmental Protection Agency (EPA), the federal Occupational Health and Safety Administration (OSHA), the California Division of Occupational Safety and Health (CAL/OSHA), the California Department of Toxic Substances Control (DTSC), the California State Licensing Board, and the Bay Area Air Quality Management District (BAAQMD).

The EPA regulates the generation of asbestos-containing wastes from mining, milling, manufacturing, fabrication, and removal operations (from buildings); the transport of asbestos wastes; and the disposal of asbestos wastes. OSHA has established occupational exposure standards for asbestos, engineering and administrative controls for limiting worker exposure, workplace practices, and medical surveillance requirements. In California, state occupational standards for asbestos are enforced for public projects by CAL/OSHA. The DTSC classifies friable wastes which contain more than one percent by weight asbestos as hazardous wastes and requires them to be disposed of at landfill sites which are permitted to accept such wastes. The California Contractors State License Board certifies contractors who remove or handle building materials containing asbestos. The BAAQMD requires that contractors notify the agency prior to demolition work involving asbestos, or renovations involving greater than 160 square feet or 260 linear feet of asbestos.

**Mitigation Measure 3.1.8-5**

A Hazardous Waste Manifest which details the hauling of the material from the site and its disposal must be filed, should asbestos materials be discovered prior to disturbance and removal. The contractor and hauler of the demolition material must be registered with CAL/OSHA. Implementation of the applicable regulatory procedures regarding asbestos would result in an insignificant public health impact. (I)

A site-specific Hazardous Materials Management Plan (HMMP) would be developed prior to structure demolition. Demolished material would be analyzed for asbestos content according to methods described in the HMMP. Asbestos wastes would be handled and transported either: (1) in sealed containers such as double plastic bags, cartons, drums, or cans from which fibers cannot escape; or (2) in closed vehicles such as covered drop boxes or canvas-covered truck boxes. The wastes
within the sealed containers or boxes must be wetted to prevent blowing of dust or fibers in the event the cover is broken.

**Impact 3.1.8-6**

For Project #18, Burbank Housing, the soils affected by caustic chemical spills can become a strong irritant on direct contact with skin or eyes, or if breathed as dust. This is a potentially significant public health risk impact. (PS)

Soils tested in the project area were found more caustic than local background levels and the normal range of soil pH. The pattern of corrosion of sheet metal on the east side of the barn is attributed to this broad range of pH. The regulatory agencies do not provide guidelines or regulations which would identify these soils as hazardous materials or require that these soils be remediated. The barn represents an attractive nuisance to children who might come to live in the proposed housing.

**Mitigation Measure 3.1.8-6**

The pH of the soils at the project site would be adjusted to within the 6 to 8 range. This would result in an insignificant public health impact. (I)

The barn should be demolished. In order to adjust the soil pH, it is recommended that the yard and barn area be excavated to 2 feet depth and thoroughly mixed. The soil pH of the mixture should be measured and the soil mixture amended with soil sulfur to raise the pH or with hydrated lime to lower the pH.

Compliance with these mitigation measures would render Impact 3.1.8-6 insignificant.

1. Southwest Santa Rosa Master Environmental Assessment, LSA, April 1991.

2. California Environmental Protection Agency; McMinn Avenue Site, Santa Rosa, California; Fact Sheet, Number 6; June 1992.

3. California Environmental Protection Agency; McMinn Avenue Site, Santa Rosa, California; Fact Sheet, Number 6; June 1992.


6. Design, Soils and Groundwater Testing Services Sebastopol Road Widening Project Santa Rosa, California for Sonoma County Community Development Commission; Dames and Moore Project No. 21115-001-043; October 29, 1991.

7. Summary and Status Report on Groundwater Cleanups in Southwest Santa Rosa (Including the McMinn Superfund Area), Santa Rosa, Sonoma County, Regional Water Quality Control Board - North Coast Region, November 10, 1992.


10. August 19, 1991 letter from Roy O'Connor, Staff Geologist, California Regional Water Quality Control Board - North Coast Region, to Sharon Bruno, FUDS (Formerly Used Defense Sites) Program Coordinator, U.S. Army Corps of Engineers.

11. Ibid.


15. Personal communication with Terry Kinney, NCRWQCB.

16. The Cities of the County of Sonoma and Sonoma County, under an agreement, have created a Joint Powers Agency to deal with household hazardous waste, wood waste, yard waste and public education.


3.1.9 CULTURAL RESOURCES

INTRODUCTION

The Cultural Resources studies include a two-level approach: (1) summarize the archaeological and historical setting for the entire 3800-acre Plan area, including the identification of known resources and sensitive locations -- identify potential constraints on development, potential impacts to cultural resources and develop mitigation alternatives for a program-level environmental analysis, and (2) investigate thirty-five development proposal areas, which total approximately 860 acres on a project-specific basis to include field reconnaissance, impact evaluations based on available development plans, and prepare mitigation recommendations in accordance with CEQA and local historic and cultural preservation policies.

ARCHIVAL RESEARCH

The cultural resources archival review for the Southwest Santa Rosa Area was conducted by archaeologist David Chavez and historian Jan M. Hupman. Maps, reports and documents that relate to prehistoric and historic archaeological resources and resource potentials within the study area were reviewed at the California Archæological Inventory Northwest Information Center at Sonoma State University in Rohnert Park (File No. 93-95).

Supplemental map review and historical research was conducted at the Bancroft Library and the Doe Library Map Room, both located at the University of California in Berkeley. The Sonoma County Historical Society’s archival materials were also reviewed in the Sonoma County History Room at the Sonoma County Library in Santa Rosa.

The following are the major historic property listings reviewed: the National Register of Historic Places, the California Inventory of Historic Resources, the California Historical Landmarks and Five Views: An Ethnic Sites Survey for California. The City of Santa Rosa’s Historic Properties Inventory (1990), compiled from various cultural heritage surveys and published by the Department of Community Development (DCD), was also consulted. Emphasis was placed on the Southwest Santa Rosa Master Environmental Assessment Historic Architectural Survey Report and its Appendix entitled Southwest Santa Rosa MEA Historic Resource Inventory List of Notable Architectural Properties by Dennis E. Harris and Susan M. Clark (1991) as well as the Stony Point Road
Reconstruction Project Historic Architectural Survey Report by Mary and Adrian Praetzellis et al. (1989).

Additional archaeological and historical resources materials used for this study are referenced in the setting discussion.

FIELD INVESTIGATIONS

Historian Jan Hupman and archaeologist David Chavez conducted an overview reconnaissance of the Plan area. Archaeological field reconnaissance was conducted for all thirty-five project sites in June 1993 by Nina Ilic and Robert Duddles, under the direction of David Chavez.

During the archaeological survey, close attention was given to the detection of those surface features that suggest the presence of prehistoric cultural deposits in this part of Sonoma County (changes in soil color, composition and/or texture, which suggest the occurrence of archaeological midden; unusual ground contours or abrupt changes in vegetation patterns; the presence of prehistoric stone, shell or bone artifacts; obsidian, chert, basalt and other types of lithic flaking wastes; fire-fractured rock, charcoal deposits and charred faunal remains). Equal attention was given to the detection of historic artifacts, deposits and features that suggest the possibility of historical resources that are over fifty years old.

Generally, archaeological survey conditions were not good; dense grass cover was typically encountered on most of the inspected terrain, which compromised the study teams ability to locate and identify ground surface materials and features that suggest the presence of archaeological sites. The following are summaries of survey methods and findings at each of the project properties. Historic structure information is taken from the referenced historic architectural studies.

Project #1: Dutton Place

This 3.38-acre property, located at 2334 Dutton Avenue, was surveyed by walking parallel transects at approximately 15 to 20 meters apart on all accessible terrain. A house was under construction on one-third of the property that fronts Dutton Avenue. The rest of the area was characterized by dense, tall grass and survey conditions were poor. Reconnaissance procedures included seeking out
bare patches of ground, rodent burrow dirt and occasionally clearing small areas with hand trowels. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented at 2334 Dutton Avenue (APN 043-041-37) (DCD 1990; Harris and Clark 1991). A 1945 Minimal Traditional structure in good condition is located at 2373 Dutton Avenue (APN 043-041-45). The structure appears to be ineligible for National Register of Historic Places listing or for local designation as an important resource (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

**Project #2: Westmeadow Park**

This 4.5-acre property, located at 1815 Burbank Avenue, was surveyed by walking parallel transects at approximately 15 to 20 meters apart on all accessible terrain, particularly along Roseland Creek. Grass was dense and tall and survey conditions were poor. No evidence of prehistoric or historic archaeological resources was observed.

Neither of the houses on the property are identified as historic structures; however, the circa 1940 barn is referenced by Harris and Clark (1991) as being in good condition, but not considered to be an important resource eligible for local designation. It does not appear to meet CEQA criteria as an important historic resource.

**Project #3: Western Gardens**

This 3.94-acre property, located at 1320 Hearn Avenue, was surveyed by walking parallel transects at approximately 15 to 20 meters apart on all accessible terrain. The area around the houses and barn had recently been plowed and survey conditions were good. Two pieces of obsidian and two pieces of chert, possibly prehistoric flakes, were found within a 20-meter radius. Because the items were not clearly a result of prehistoric cultural activity, no site was recorded; however, the area is regarded as archaeologically sensitive with a potential for subsurface prehistoric cultural deposits.

A 1903 hip roof cottage is located on the property. The structure, which is in good condition, appears to be ineligible for National Register listings or for local designation as an important resources; nor is it a contributing factor in a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.
Project #4: Fouche Village

This 12.2-acre property, located at 2290 Dutton Avenue, was not subject to a thorough archaeological reconnaissance. Its current use as an auto wrecking yard obscured eighty percent of the area. The remaining terrain was partially covered with dense vegetation; some areas were graded and sample field inspection was possible. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

Project #5: Southcreek Village

This 19.3-acre property, located at 1360-1400 Burbank Avenue, was surveyed by walking parallel transects at approximately 15 to 20 meters apart, except where terrain was occupied by existing houses. An old apple orchard in the northern half of the property had recently been disked and ground visibility was relatively good. No evidence of prehistoric or historic archaeological resources was observed.

Two historic structures are located on the project property. A 1905 Bungalow in fair condition with some alterations is located at 1370 Burbank Avenue (APN 125-252-03). A 1931 vernacular structure in excellent condition is located at 1400 Burbank Avenue (APN 125-331-01), along with a 1865 cemetery which, although deteriorated, contains the T. M. Markham family plot. Neither of the two structures appear to be eligible for National Register listing or for local designation as important resources. The cemetery is listed as possibly eligible for the National Register (Harris and Clark 1991). Cemeteries generally are not considered for National Register inclusion and no documentation for the importance of the associated Markham family is offered. Harris and Clark (1991) include both houses and the cemetery in the potential Burbank Avenue Historic District and all three may meet CEQA criteria as important historic resources.

Project #6: Baker Subdivision

This 5.75-acre property, located at 2875 South Dutton Avenue, was surveyed by walking parallel transects at approximately 15 to 20 meters apart. Some tall, dense grass was present and survey was limited to seeking out bare patches of ground, rodent burrow dirt and occasionally clearing small
areas with hand trowels. No evidence of prehistoric or historic archaeological resources was observed.

A 1915 Queen Anne-style farmhouse is located on the property. The structure, known as the Dutton House, is in fair condition and appears eligible for local designation as part of an historic district (Harris and Clark 1991). The farmhouse likely meets CEQA criteria as an important historic resource.

**Project #7: Burbank Avenue Condos**

This 5-acre property, located at 1780 Burbank Avenue, was surveyed by walking over the limited accessible terrain. Most of the property was obscured by barns, stables, corrals and gravely areas. The visible terrain was heavily impacted by the long-term presence of horses. No evidence of prehistoric or historic archaeological resources was observed.

A 1930s tract-style house is located on the property. The structure, which is in good condition, appears eligible for local designation as part of the Burbank Avenue Historic District (Harris and Clark 1991), and likely meets CEQA criteria as an importance historic resource.

**Project #8: Ash Drive**

This 2.36-acre property, located at 2180 Ash Drive, was surveyed by walking parallel transects at approximately 15 to 20 meters apart. The relatively higher terrain in the southwest segment of the area, where oak trees were present, was closely inspected. The remainder of the area consisted of grass-covered pastureland with evidence of vernal pools. Survey conditions were moderately good and no evidence of archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

**Project #9: Courtside Village**

This 68.5-acre property, located at 3950 Sebastopol Road, extends on both the north and south side of Sebastopol Road and contains eighteen parcels. The site included numerous houses, a trailer park, livestock pastures and corrals, a church site, the Blue Star gas operation, the Countryside Racquet Club and open lots. The area was surveyed by walking parallel transects on all accessible terrain,
including an orchard adjacent to Highway 12. A considerable amount of debris and construction rubble was observed. Survey conditions were poor as tall, dense grass covered most vacant areas. Small clear areas and rodent burrows were sought out and a few sample areas were cleared with hand trowels. No evidence of prehistoric or historic archaeological resources was observed.

Ten of the eighteen parcels contain historic structures.

A circa 1920 Bungalow, in good condition, is located at 3820 Sebastopol Road (APN 035-102-16). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (DCD 1990; Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1900 Queen Anne-style house, in fair condition, is located at 3825 Sebastopol Road (APN 035-063-16). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (DCD 1990; Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A 1925 Hip Roof Farmhouse, in good condition, is located at 3840 Sebastopol Road (APN 035-102-15). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (DCD 1990; Harris and Clark 1991). It may meet CEQA criteria as part of an important historic resource.

A 1947 vernacular structure, in fair condition, is located at 3841 Sebastopol Road (APN 035-063-14). The building is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1910 Hip Roof Farmhouse, in good condition, is located at 3897 Sebastopol Road (APN 035-063-13). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). It may meet CEQA criteria as part of an important historic resource.
A 1914 Tudor Revival structure, in good condition, is located at 3900 Sebastopol Road (APN 035-102-26). The building is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1920 Craftman Bungalow, in excellent condition, is located at 3928 Sebastopol Road (APN 035-102-20). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). It may meet CEQA criteria as part of an important historic resource.

A pre-1946 Queen Anne-style house, located at 3945 Sebastopol Road (APN 035-063-11). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (DCD 1990). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1940 vernacular structure, in deteriorated condition, is located at 3950 Sebastopol Road (APN 035-091-26). The building is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1945 vernacular structure, in deteriorated condition, is located at 3957 Sebastopol Road (APN 035-063-12). The building is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

No historical structures are documented for parcels 035-063-09 and 10, 035-063-15, 035-102-09 and 10, -35-102-23 and 25 and 035-160-26, which are also included in the Project #9 development area.

**Project #10: Martin Homeless Housing**

This 5.2-acre property, located at 4025 Sebastopol Road, was surveyed by walking parallel transects at approximately 15 to 20 meters apart. A building is located on the area, as well as piles of asphalt
and gravel. The undeveloped portions of the property were covered with tall, dense grass and survey conditions were poor. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

**Project #11: Northpoint Village**

This 61.2-acre property, located at 2567 Stony Point Road, was surveyed by walking parallel transects at approximately 20 meters apart. Tall, dense grass made for poor survey conditions and no evidence of prehistoric or historic archaeological resources was observed. It is noted that a previous survey of the Roseland Creek corridor (Hoes 1973), which transects the property, resulted in a negative finding.

The turn-of-the-century Boorman Dairy was located on the property and several structures remain: a vernacular residence, three gable-roof barns and a garage. All structures were found to be ineligible for National Register consideration and ineligible for local designation as important historical resources (Praetzellis et al. 1989). Harris and Clark (1991) identified the residence as a circa 1900 bungalow and found it to be non-contributing to the potential North Stony Point Road Historic District. Consequently, none of the structures appear to meet CEQA criteria as important historic resources.

**Project #12: Solarium 2010**

This two-thirds of an acre property, located at 712 and 718 Brittain Lane, was surveyed by walking parallel transects at approximately 10 meters apart. Survey conditions were acceptable and no evidence of prehistoric or historic archaeological resources was observed.

A 1948 Mission Revival-style structure, in fair condition, is located at 712 Brittain Lane (APN 035-251-32). No apparent historical importance is attributed to this building and it appears that it does not meet CEQA criteria as an important historical resource. No additional historic structures were documented on the property or at 718 Brittain Lane (Harris and Clark 1991).
Project #13: Mountain View Homes

This 1.17-acre property, located at 2722 Stony Point Road, was surveyed by walking transects at approximately 15 meters apart. Grass cover was moderate and survey conditions were fair. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (Praetzellis et al. 1989; Harris and Clark 1991; DCD 1990)

Project #14: Lands of Kersch

This 7-acre property, located at 2872 Stony Point Road, was surveyed by walking transects at approximately 15 meters apart. Moderate grass cover was present and survey conditions were fair. A single obsidian flake, probably altered in prehistoric times, was discovered in the northeast corner of the property. Intensive inspection within a 35-meter radius of the find produced no additional evidence of cultural deposits on the property. The single flake is not sufficient evidence to declare the presence of an archaeological site; however, the area is regarded as archaeologically sensitive with a potential for subsurface prehistoric cultural deposits.

No historic structures are documented on the property (Praetzellis et al. 1989; Harris and Clark 1991; DCD 1990)

Project #15: Giffen Estates

This 5.6-acre property, located at 2200, 2150 and 2045 Giffen Avenue, was difficult to survey because of a tall, dense hay crop. Ground surface was exposed in a few locations throughout the area and along the borders of the property; otherwise survey conditions were extremely poor. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented at 2200 Giffen Avenue (APN 035-132-27) or at 2045 Giffen Avenue (APN 035-132-36) (DCD 1990; Harris and Clark 1991). A 1940 vernacular building, in good condition, is listed by Harris and Clark (1991) at 2150 Giffen Avenue; however, the parcel number (APN 035-132-31) does not match the parcel number given in the property description (APN 035-132-33). The structure is not identified as a National Register eligible or local designation eligible
resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

**Project #16: Lands of Wisner**

This 20-acre property, located at 2830 Stony Point Road, was surveyed by walking parallel transects at approximately 20 meters apart. The undeveloped terrain consisted of pastureland with modest vegetation cover and survey conditions were good. An obsidian point fragment of prehistoric origin, was discovered in the stable area northeast of the house. An intensive inspection within a 30-meter radius of the find produced no additional prehistoric cultural materials. The point fragment is being treated as an isolated find; however, the location is regarded as archaeologically sensitive with a potential for subsurface cultural deposits.

The turn-of-the-century Fitzgerald Farmstead was located on the project area (APN 134-042-021). Praetzellis et al. (1989) described what remains of the farmstead as a vernacular, gable-front-and-wing residence, a stable, two shops and a feed barn, and found the complex to be ineligible for National Register listing or local designation as an important resource. Harris and Clark (1991) describe the residence as a circa 1900 Queen Anne-style Farmhouse, in good condition, and possibly eligible for National Register listing. The farmstead complex may meet CEQA criteria as an important historic resource.

**Project #17: Pero Apartments**

This 1.3-acre property, located at 2150 Giffen Avenue, was surveyed in combination with Project #15. The two projects share the same address; however, the project descriptions list different parcel numbers. See Project #15 for archaeological and historical discussions.

**Project #18: Burbank Housing**

This 6-acre property, located at 2450 Stony Point Road, was surveyed by walking parallel transects at approximately 15 meters apart. Two-thirds of the area was obscured by little-league baseball fields and a parking lot. The remaining terrain contained tall, dense grass and survey conditions were poor. No evidence of prehistoric or historic archaeological resources was observed.
The 1923 Bud J. Peter Farmstead is located on the property. Praetzellis et al. (1989) identified a vernacular, side-gabled residence, a tankhouse and two corrugated metal buildings; all were found to be ineligible for National Register listing or for local designation as important historic resources. Harris and Clark (1991) found the 1923 farmstead residence to be in good condition and rated it as possibly eligible for the National Register as part of the potential North Stony Point Road Historic District. The complex may meet CEQA criteria as an important historic resource.

**Project #19 (A and B): Skidmore Acres**

This 7-acre property, located at 1960 Stony Point Road, was surveyed by walking parallel transects at approximately 20 meters apart. Grass cover obscured much of the accessible terrain and reconnaissance procedures included seeking out bare patches of ground, rodent burrow dirt and occasionally clearing small areas with hand trowels. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

**Project #20: South Dutton (Weiss/Grossman)**

This 10-acre property, located at 3000 and 3012 South Dutton Avenue, was surveyed by walking parallel transects at approximately 20 meters apart. Survey conditions were poor due to the presence of tall, dense grass. Few clear areas were present, consequently, small patches of ground surface were exposed with hand trowels. No evidence of prehistoric or historic archaeological resources was observed.

A 1921 Vernacular building, in fair condition, is located at 3000 South Dutton Avenue (APN 043-122-11). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

Two historic structures are located at 3012 South Dutton Avenue (APN 043-122-07). One is a 1904 Queen Anne-style farmhouse (George Habors residence) in excellent condition and the other is a circa 1920 Brick Carriage House in fair condition. Both appear eligible for local designation as part of an historic district (Harris and Clark 1991).
Project #21: Orchard Park

This 10-acre property, located at 3365 Moorland Avenue, was surveyed by walking parallel transects at approximately 20 meters apart. The property is currently a working orchard and farm with a farmhouse, associated outbuildings and corrals present. Dense vegetation was found on most of the property, with the best ground visibility in the corral and road areas. In the grass-covered locations, reconnaissance procedures included clearing sample areas with hand trowels. No evidence of prehistoric or historic archaeological resources was observed, and they may meet CEQA criteria as important historic resources.

The farmhouse on the property is a circa 1930 bungalow that is in fair condition. The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to an historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

Project #22: Springfield

This 75.8-acre property includes seventeen parcels and as many street addresses. All of the accessible terrain on twelve of the parcels was surveyed by walking parallel transects at approximately 15 to 20 meters apart. Survey conditions ranged from good in some clear areas to poor where tall, dense grass prevailed. No evidence of prehistoric or historic archaeological resources was observed on any of the surveyed project parcels.

Five structures are located on the project property at the following addresses.

A 1937 vernacular building, associated with the Regina Chicken Coop and in fair condition, is located at 1433 Ludwig Avenue (APN 035-201-37). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A circa 1900 Queen Anne-style farmhouse, in fair condition, is located at 1485 Ludwig Avenue (APN 035-201-40). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.
A 1930 bungalow, in good condition, is located at 1517 Ludwig Avenue (APN 035-201-14). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A 1935 vernacular structure, in good condition, is located at 1577 Ludwig Avenue (APN 035-201-11). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

A 1921 vernacular structure, in fair condition, is located at 1595 Ludwig Avenue (APN 035-201-29). The structure is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (Harris and Clark 1991). It does not appear to meet CEQA criteria as an important historic resource.

No historical structures were documented at the other seven project parcels: 1275 Ludwig Avenue (APN 035-211-11); 1441 Ludwig Avenue (APN 035-201-47); 1445 Ludwig Avenue (APN 035-201-45); 1481 Ludwig Avenue (APN 035-201-41); (no address) Ludwig Avenue (APN 035-201-30); 3870 Pyle Avenue (APN 035-201-46); and 3946 Pyle Avenue (APN 035-201-07).

**Project #23: Young's Dutton Avenue**

This 5.6-acre property, located at 2853 South Dutton Avenue, was surveyed by walking parallel transects at approximately 15 meters apart. Dense to moderate ground cover was present and survey conditions were poor to fair. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

**Project #24: Lara Subdivision**

This 4.55-acre property, located at 1119 Burbank Avenue, was surveyed by walking parallel transects at approximately 15 meters apart. Moderate vegetation cover was present on the accessible parts of the property and survey conditions were fair to good. A utilized obsidian flake, prehistoric in origin,
was discovered next to one of the outbuildings. An intensive inspection within a 30-meter radius of the find revealed no additional prehistoric cultural materials. The obsidian artifact is being treated as an isolated find; however, the location is regarded as archaeologically sensitive with a potential for subsurface cultural deposits.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

**Project #25: Patrick Brennan Acres**

This 8.7-acre property, located at 1884 and 1830 Stony Point Road, was surveyed by walking parallel transects at approximately 15 to 20 meters apart. Roseland Creek fronts the eastern edge of the property and particular survey attention was given to that area. Grass cover was moderate and survey conditions were fair. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (Prætzellis et al. 1989; DCD 1990; Harris and Clark 1991).

**Project #26 and #32: California Stony Point/Bates Investment Property**

This project site totals 18.14 acres, 13.14 acres at 2701 Stony Point Road and 5 acres at 2727 Stony Point Road. The property at 2701 Stony Point Road was the subject of a previous archaeological survey (Bryne 1992a), which resulted in the discovery of a single obsidian artifact, that was recorded as a prehistoric isolate. A resurvey was accomplished by walking parallel transects at approximately 50 meters apart. The property at 2727 Stony Point Road was examined with transect spaced at 20 meters apart. Grass cover was extreme at both locations, resulting in poor survey conditions. No evidence of prehistoric or historic archaeological resources was observed. However, the 1992 Bryne find suggests that the area is archaeologically sensitive with a potential for subsurface cultural deposits.

No historic structures are documented on the property (Prætzellis et al. 1989; DCD 1990; Harris and Clark 1991).
Project #27: Lands of Pierre

This 17.28-acre property, located at 2944 South Dutton Avenue, was the subject of a previous archaeological survey (Bryne 1992b), which resulted in the discovery of two prehistoric artifacts, that were recorded as isolates. A resurvey was accomplished by walking parallel transects at approximately 50 meters apart. Tall and dense grass cover accounted for poor survey conditions. Reconnaissance procedures included seeking out relatively clear areas and rodent burrow dirt, and clearing small areas with hand trowels. No evidence of prehistoric or historic archaeological resources was observed. However, the 1992 Bryne finds suggest an archaeologically sensitive area with a potential for subsurface cultural deposits.

A 1920 Italianate-style building, in good condition, is located on one of the two parcels that make up the project area (APN 043-122-13). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). The building may meet CEQA criteria as part of an important historic resource.

Project #28: Valena (Village Station)

This 4.73-acre property, located at 3675 Sebastopol Road, was surveyed by walking parallel transects at approximately 20 meters apart. The terrain was overgrown with tall, dense grass and thistles, and survey conditions were very poor. Rodent burrow dirt and small patches of clear ground were sought out, otherwise ground visibility was minimal. No evidence of prehistoric or historic archaeological resources was observed.

The single residential structure on the property is a pre-1946 house, which is not identified as a National Register eligible or local designation eligible resource, nor does it contribute to a historic district (DCD 1990). It does not appear to meet CEQA criteria as an important historic resource.

Project #29: Bellevue Ranch

The proposed project site consists of twelve subareas which include seventeen individual parcels, ranging in size from 1 acre to 19.53 acres, totaling 126.13 acres. The following addresses and parcel numbers are included:
### Address | Parcel Numbers
--- | ---
2748 Stony Point Road | APN 134-290-01
2780 Stony Point Road | APN 134-042-22
- Bellevue Avenue | APN 134-042-04
- South Dutton Avenue | APN 134-042-03
none | APN 134-042-05
none | APN 134-042-02
2773 South Dutton Avenue | APN 043-072-05
1860 Hearn Avenue | APN 134-042-38, 134-300-18 through -22
2893 South Dutton Avenue | APN 043-111-07
2666/2650 South Dutton Avenue | APN 043-071-22 and -23
2694 South Dutton Avenue | APN 043-071-07
1130 Hearn Avenue | APN 043-200-04 and 043-191-05

All seventeen parcels were surveyed by walking parallel transects at approximately 20 meters apart. Most of the parcels contained tall, dense grass that made for poor survey conditions; mowed hay was encountered at parcel no. 12, which made survey work even more difficult. Reconnaissance procedures included seeking out clear patches of ground surface, rodent burrow dirt and clearing small areas with hand trowels. Moderate vegetation cover was present at two parcels (nos. 8 and 13) and survey conditions were moderate to good. No evidence of prehistoric or historic archaeological resources was observed on any of the project parcels.

Historic or potentially historic resources are located on the following properties.
A circa 1916 Queen Anne-style structure, in good condition, is located at 2773 South Dutton Avenue (APN 043-072-05). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). It may meet CEQA criteria as part of an important historic resource.

A 1915 Queen Anne-style house, in good condition, is located at 2650 South Dutton Avenue (APN 043-071-23). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). It may meet CEQA criteria as part of an important historic resource.

No historical structures were documented on the ten remaining properties (3, 4, 5, 6, 9 and 12) associated with the Bellevue Ranch development.
Project #30: Air Center Project

This 323.9-acre property (APNs 035-141-07, -16 and -21 and 035-182-11) is located at the vacant Santa Rosa Air Center property east of South Wright Road and south of Sebastopol Road. A sewer-system-related archaeological reconnaissance (Bieling 1986), on very limited portions of the area adjacent to South Wright Road and Madera Avenue, resulted in the recording of four archaeological sites on the Air Center property. One site, CA-Son-1531H, is a turn-of-the-century deposit consisting of a sparse glass and ceramic scatter. The other sites, Son-1526, -27, -28 and -29 are prehistoric lithic scatters, "probably the result of task-specific activities" (Bieling 1986:4).

The four known archaeological sites were re-located despite tall, dense grass cover in the area. Much of the property is obscured by Air Center pavement and survey of the unobstructed terrain was accomplished by walking parallel transects at approximately 15 to 20 meters apart. Survey conditions were poor and reconnaissance procedures included seeking out relatively clear locations and rodent burrow dirt and clearing small sample areas with hand trowels. No further evidence of prehistoric or historic archaeological resources was observed.

Harris and Clark (1991) discuss the Santa Rosa Air Center as a potential historic district; however, no historic architectural evaluations are developed regarding the Kodiak Hangar on Site #30, or other structures and features that would be located in the potential district.

This is the only potential district where the themes, context statements, property type and registration requirements developed by the Bloomfield and Praetzellis studies do not fit. Until the context statement for 'World War II Military Air Installations' is written, the associated property types developed and the registration requirements specified, the extant structures and buildings located at the Santa Rosa Air Center cannot be properly evaluated. The potential district includes approximately 400 acres, the air strip, hangers, barracks, ammunition storage facilities, military and aircraft related structures (Harris and Clark 1991:37).

Project #31: Ken Martin Property

This 7.4-acre property, located at 2300 Hearn Avenue, was surveyed by walking parallel transects at approximately 20 meters apart. Tall, dense grass prevailed throughout and survey conditions were poor to fair. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).
Project #32: (see Project #26)

Project #33: Bellevue Interchange

The proposed interchange is located at the existing terminus of Bellevue Avenue on the western side of Highway 101 and directly opposite on the east side of Highway 101. Some improved commercial and residential property exists at the proposed site and would have to be removed. The area of potential effects is not defined and, consequently, a cursory survey was conducted on open terrain surrounding existing structures in the vicinity of the proposed interchange. No evidence of prehistoric or historic archaeological resources was observed.

No street addresses or APNs are given for the commercial and residential properties that would be removed for the project; it therefore remains uncertain as to whether or not historic structures are involved.

Project #34: New Southwest Fire Station

This .81-acre property, located at 1955 Northpoint Parkway, was surveyed by walking parallel transects at approximately 15 meters apart. Moderately dense grass made for fair to poor survey conditions. No evidence of prehistoric or historic archaeological resources was observed.

No historic structures are documented on the property (DCD 1990; Harris and Clark 1991).

Project #35: Bellevue Elementary School

These 10.35-acre property, located at 2655 and 2681 South Dutton Avenue, was surveyed by walking parallel transects approximately 20 meters apart. Ground cover had recently been mowed and survey conditions were moderately good. Two obsidian flakes, possibly from the prehistoric period, were discovered on a small knoll. Intensive inspection within a 40-meter radius of the finds revealed no additional materials suggestive of an archaeological site. The two flakes are considered to be cultural isolates; however, the property is regarded as archaeologically sensitive with a potential for obscured, possibly buried, prehistoric deposits.

A circa 1920 Hip Roof Cottage located at 2655 South Dutton Avenue has been removed.
SOUTHWEST AREA PLAN

SETTING

Prehistory/Archaeology

The Southwest Santa Rosa Plan area is located in the Sonoma Archaeological District, in the southernmost portion of the Russian River subregion. The Santa Rosa Valley has been described as an interface between the prehistoric cultures of central California and the San Francisco Bay region and those of the North Coast Ranges (Thompson 1979:4). Laguna de Santa Rosa, Santa Rosa, Matanzas and Roseland Creeks are all part of a locality that in prehistoric times provided extensive marshland and lacustrine resources. The Anadel obsidian source, which was important to central California obsidian trade, is located a few miles east of the Plan area. These are all contributing factors in accessing local archaeological sensitivity.

Archaeological studies on the Laguna de Santa Rosa suggest a very early date for human occupation in the region. Crescent-shaped chert artifacts from Son-977, in the Sebastopol area, have rendered unsubstantiated dates of pre-5000 B.C., which would be associated with the poorly-defined Paleo-Indian Period (Origer and Fredrickson 1980:21, cited in Moratto 1984:516).

The Lower Archaic Period (circa 6000 to 3000 B.C.) is not well represented in the Santa Rosa area. However, artifacts (large, wide-stem points), from Son-20, a few miles east of the Plan area, and from Warm Springs sites to the north, are acknowledged examples of the Lower Archaic cultural phenomena identified as the Borax Lake Aspect (Wickstrom and Fredrickson 1982, cited in Moratto 1984:517). The Middle Archaic Period (circa 3000 to 1000 B.C.) is represented in the region by several archaeological sites that exhibit Mendocino Aspect artifacts (concave-based projectile points and introduction of mortar and pestle).

The Borax Lake Cultural Pattern, which included both the Lower and Middle Archaic Periods, probably ended circa 500 B.C. and was replaced by the Houx and Ellis Landing Aspects of the Upper Archaic Period/ Berkeley Pattern. The Ellis Landing Aspect is represented in the Plan area region by Son-979 on the Laguna de Santa Rosa. An abundance of projectile points suggest an emphasis on a hunting-oriented culture, with millingstone artifacts less well represented, but continuing from the earlier Borax Lake Pattern. Evidence of the Houx Aspect is represented in the general vicinity; Son-655, located in Blucher Valley, Son-84, in the Bennett Valley and, Son-948, on the Laguna Santa
Rosa, are all located within a few miles of the Plan area and all have rendered projectile points diagnostic of the Houx Aspect (Thompson 1979:5).

The Emergent Period (circa 500 to 1850 A.D.) is represented by many sites in the region that exhibit Augustine Pattern cultural materials. Son-455, a bead manufacturing site, is located approximately 2 miles south of the Plan area; Son-159, a habitation site, is situated near Cotati; and Son-920 is located in western Santa Rosa (Thompson 1979:5). This Late Period appears to have been one of substantial influx of populations and cultural influences from the Delta and Bay regions (Moratto 1984:519).

It is apparent that the region in which the Southwest Santa Rosa Plan area is located is a favorable setting for the occurrence of prehistoric archaeological resources; particular sensitivity exists along Santa Rosa and Roseland Creeks and the many unnamed intermittent and ephemeral creeks that characterize the area.

Several cultural resources investigations have taken place within the 3,800-acre Plan area (Hoes 1973; King 1973; Origer 1976 and 1989; Mabry 1979; Bieling 1986; Wilbur 1986; Hale 1988; Tremaine 1988; Babel and Padon 1992; Bryne 1992a and 1992b; and Flynn 1992). Five prehistoric archaeological sites (Son-1526, -1527, -1529, -1530 and -1694) and five historic archaeological sites (Son-1631H, -1781H, -1782H, -1785H and -1786H) have been recorded within the boundaries of the Plan area. Four sites (Son-1527, -1526, -1530 and -1531H) are located within Project #30. The six other archaeological resources are located throughout the Plan area, none of which are situated on development project properties.

Isolated artifacts and suspected artifacts associated with the prehistoric period have been found on seven of the development properties (#s 3, 14, 16, 24, 26, 27 and 35). Additional cultural materials may be obscured by dense vegetation or buried on these properties and they are regarded as archaeologically sensitive locations.

Overall, the 380-acre Southwest Santa Rosa Plan area is regarded as archaeologically sensitive where additional prehistoric cultural deposits likely exist. The archaeological record indicates that Native American use and occupation of the region extended throughout the known Sonoma Archaeological District prehistoric cultural sequence. Consequently, cultural deposits likely contain important
information concerning issues of prehistoric settlement patterns, cultural change, trade, population movements and other important research considerations.

**Ethnography**

At the time of historical contact (circa 1800 A.D.), the Plan area was occupied by the Southern Pomo. Their territory, which stretched approximately fifty miles north to south and twenty to forty miles east to west, encompassed the present-day cities of Santa Rosa, Sebastopol, Guerneville, Gualala, Cloverdale and Healdsburg as well as the drainages of Rockpile, Big Sulphur, Dry, Pena, Mill and Santa Rosa Creeks and the Russian River (McLendon and Oswald 1978:278-279).

The Bitakomtara tribelet was located in the Santa Rosa area and controlled a region that included the local plains and laguna areas and the hills to both the west and east, which provided access to hunting and fishing areas as well as seed and acorn gathering areas (LSA 1991).

The year-round villages of the Southern Pomo included domed-shaped, earth-covered, semi-subterranean sweat houses as well as large, similarly-constructed dance houses or assembly houses, often capable of accommodating the entire village population. The most common structures, however, were the small, domed, thatched-covered dwellings constructed on a bent-pole framework (Kroeber 1925; Bean and Theodoratus 1978:292-293).

For detailed Southern Pomo ethnographic information, see S. A. Barrett (1908, 1917, 1933, 1952), E. M. Loeb (1926), E. W. Gifford and A. L. Kroeber (1939) and L. J. Bean and D. Theodoratus (1978).

**History**

**Spanish Period (1776-1822)** - Although European explorers such as Juan Cabrillo, Bartolome Ferrelo, Francis Drake and Sebastian Cermenko ventured along the northern California coast during the 1500s, the Spanish crew members of Sebastian Vizcaíno were reportedly the first to set foot in present-day Sonoma when their ships anchored in Bodega Bay in 1602-1603. One-hundred-and-seventy-three years later, in 1776, Mission San Francisco de Asis (Mission Dolores), as well as a presidio, were founded at the northern end of the San Francisco Peninsula. By 1800 eighteen
missions, four presidios and three pueblos had been established in Alta California (Beck and Haase 1988:13-14, 19).

The first recorded overland Spanish expedition into present-day Sonoma County took place in 1810 under the leadership of Gabriel Moraga who traveled as far north as Bodega Bay and possibly crossed Santa Rosa Creek in the general vicinity of the Plan area. Between 1812 and 1814 Moraga made three more fact-finding trips north, visiting the newly-established Russian settlements at Bodega Bay as well as at Fort Ross. Fearing Russian expansion and regarding their California colonies as being "in violation of international law," the Spanish advanced northward, establishing Mission San Rafael Arcangel on December 14, 1817 (Watrous 1992:16; Beck and Haase 1988:18-19).

In search of additional mission sites, Francisco Castro, Alférez Jose Sanchez and Padre Jose Altimira set out from San Francisco in June of 1823 to explore present-day Sonoma, Napa and the Suisun plains.

Attracted to the Sonoma Valley region, in 1823 the Franciscans founded their last mission in California -- San Francisco Solano (Mission Sonoma) in the present-day city of Sonoma (Beck and Haase 1988:18-19; Hoover et al. 1990:476). The padres at Mission Sonoma would continue their aggressive missionary policy which had been established in the late 1700s.

Following the founding of Mission Dolores and the Presidio at San Francisco, the Spanish began raiding the Southern Pomo territory for potential "converts." By the 1820s at least six-hundred Pomo (many recruited from as far north as Santa Rosa) had been baptized at Missions San Rafael and Sonoma. During the Mexican period, when the government systematically began granting large parcels of land to individuals, many ranchos were established deep in Pomo territory. As a result, "the Pomo were subject to constant raiding for capture and sale, thus bring them into a peon working status" (Bean and Theodoratus 1978:229).

Between 1834 and 1847, thousands of Pomo were captured or died as a result of increasing Mexican military campaigns. Before 1838 all Southern and Central Pomo territory was in Mexican hands...either settled or about to be settled. In 1838-1839 thousands of Pomas died during a smallpox epidemic (and in 1833 a cholera (or possibly malaria) epidemic devastated many Pomo villages. These diseases, plus displacement, enslavement, massacres, raids, and the beginnings of Anglo-American migration set the stage for the ever more rapid decline of the Pomo people and their cultural heritage. Throughout the early years of American occupation, 1850-1870,
public efforts to eliminate local Indian populations resulted in the establishment of
the Mendocino Indian Reserve near Fort Bragg and the Round Valley Reservation
in 1856. Pomo were rounded up, resettled at these reserves and their lands
immediately occupied and deeded to Whites (Bean and Theodoratus 1978:229).
Ethnic identity was lost in the region of Santa Rosa and Sebastopol several
generations ago; the dozen or so speakers remaining in 1976 originate from north of
Healdsburg (McLeandon and Oswalt 1978:279).

A principal Southern Pomo village (or tribe) was reported at the head of Santa Rosa Creek in
Spanish times. Other accounts place a major village near the city of Santa Rosa, which would have
been the settlement of Hubabetawi. Other regional village sites were likely located along the Laguna
de Santa Rosa (Kroeber 1925:233). No known ethnographic villages or features are known to be
located within the Southwest Santa Rosa Plan area or in the immediate vicinity.

**Mexican Period (1822-1848)** - During the Spanish era the land of Alta California remained under
the domain of the government; it was not until the Mexican period that large tracts were placed in
the hands of individuals who, to a great extent, engaged in cattle ranching as well as in the hide and
tallow trade. In order to discourage further encroachment of Russian settlements into Spanish
territory, over two dozen land grants were issued in Sonoma County, which fell under the military
control of General Mariano G. Vallejo. General Vallejo invited so many members of his large,
extended family to settle in the area that at one point during the 1800s nearly half of present-day
Sonoma County was owned by Vallejo and his family. Two such land grants were the 8,885-acre
Rancho Cabeza de Santa Rosa and the 13,316-acre Llano de Santa Rosa (Beck and Haase 1988:29;
LeBaron et al. 1985:2, 7). The northeast corner of the Southwest Santa Rosa Plan area is located
on former Rancho Cabeza de Santa Rosa lands, while the remainder lies within the boundaries of
the Mexican-era Rancho Llano de Santa Rosa.

In 1838 Maria Ignacia Lopez de Carrillo, General Vallejo’s widowed mother-in-law, petitioned to
claim the land of Rancho Cabeza de Santa Rosa. Arriving in Sonoma from San Diego, by 1840 the
43-year-old Dona Maria, her sons and Indian laborers had constructed a family adobe which measured

20 feet by 90 feet with walls three feet thick supported by solid beams cut from the
valley oaks. Later descriptions of the rancho suggest two large adobe buildings,
perhaps a servants’ quarters in addition to the Carrillo home. Rancho Cabeza de
Santa Rosa...bordered by creeks...soon had 300 acres under cultivation, including fields
of grain and fruit trees and a vineyard of mission grapes. Within two years Dona
Maria had 1,200 to 1,500 horses, some sheep, and 3,000 cattle (LeBaron et al. 1985:2-
4).
On September 30, 1841 Rancho Cabeza de Santa Rosa was officially granted to Maria Carrillo by Governor Juan Alvarado (LeBaron et al. 1986:4; Bean 1978).

Senora Carrillo...continued to reside there for the remainder of her life. Her residence was located on the south side of Santa Rosa Creek. One ruined building remains near the corner of Hartley Drive and Franquette Avenue, just north of Montgomery Drive, in eastern Santa Rosa.... The Carrillo adobe may safely be said to be the first [non-Indian] dwelling erected in the vicinity of Santa Rosa (Hoover et al. 1990:479-480).

In 1844 Rancho Llano de Santa Rosa was conferred to Mariano Vallejo’s brother-in-law (Maria Carrillo’s eldest son), Joaquin Carrillo, by Governor Manuel Micheltorean.

Joaquin Carrillo built a small house and later built a larger one, long ago torn down. This adobe faced the east on what is now Petaluma Avenue in Sebastopol (Hoover at al. 1990:480).

Maria Carrillo’s homepage was located approximately two miles northeast of the Plan area, while the site of the Joaquin Carrillo adobe lay some three miles to the west. No known adobe structures or potential historical remains associated with the Spanish or Mexican periods are known to exist within or immediately adjacent to the Plan area.

**Early American Period (1848-1880s)** - After the signing of the Treaty of Guadalupe-Hidalgo, on February 2, 1848, California became a part of the United States; nine days earlier gold had been discovered in the Sierra foothills. By the end of 1849 over 100,000 gold-seeking immigrants from the East and around the world had poured into California. During the early 1850s, however, the diggings played out and the miners headed back down the mountains, many of whom settled in California. Unlike most Mexican-era land grantees, who were forced to contend with squatters and claim disputes, the Carrillo family appears to have peacefully sold their rancho lands. Numerous early Sonoma County settlers were former miners who purchased parcels on Ranchos Llano de Santa Rosa and Cabeza de Santa Rosa and returned to their former occupations as farmers and ranchers (Nava and Barger 1976:169-176 180-182; Praetzellis et al. 1989:13).

By 1853 the town of Santa Rosa had been laid out and lots were soon being sold. The following year Santa Rosa was voted the Sonoma County government seat and Maria Carrillo’s son, Julio, donated land for a courthouse. By 1859 the town’s four-hundred citizens could boast of two churches, a
school, a newspaper, nine dry-goods and grocery stores, a drug store, two hotels, two restaurants, two saloons, a saddler shop, a butcher shop, a shoemaker, a jeweler, a paint shop, a carriage shop, three carpenter shops, a pump factory, two livery stables, a bakery, and seventy-four houses as well as two preachers, nine lawyers and five doctors (Finley 1937:215-217).

The city's growth from 1859 to 1870 was slow, mounting to only nine hundred. But in 1872 the railroad was completed, causing a change almost magical. Within five years the population had jumped to six thousand; the number of residences increased to twelve hundred, many being substantial brick buildings, and the city limits were extended to include an area a mile and a half square (Finley 1937:217).

On the outskirts of town, farms and ranches also sprang up. Potatoes were one of the earliest and most successfully grown cash crops in Sonoma County. By the 1850s not only were Sonoma potato farmers outproducing every other county in California but by the end of the decade the wheat, oat, corn and barley produced in the region was being shipped by the ton from San Francisco to nations around the world. By the 1880s over 1,300,000 bushels of grain were grown in the County.

Livestock also played an important role in the economic development of Sonoma County and Santa Rosa. Although beef cattle grazed by the thousands throughout Sonoma County during the 1860s, when the Santa Rosa Woolen Mills opened in the mid-1870s, sheep and their wool also became an important commodity. Many ranchers around Santa Rosa shifted from beef cattle to sheep raising and by 1880 the latter had tripled in number. The dairy cattle population also grew dramatically during the 1860s and 1870s. The production of butter, cheese and milk would create a dairy industry that prospered well into the twentieth century (LeBaron et al. 1985:56-59).

In the 1870s, with the arrival of refrigerated railroad cars, the Sonoma County fruit industry was able to develop fully. While farmers in the Santa Rosa Valley had always grown cherries, peaches, apples and pears for their own consumption, the railroad now provided a way to transport both fresh and dried fruit to market. Vineyards and wineries as well as hop production also came into their own during the 1880s. Fruit growing had become so profitable that many farmers and ranchers converted their fields and pastures to orchards and vineyards (LeBaron et al. 1985:59-67).

Bowers' map of Sonoma County shows that all the land within the Southwest Santa Rosa Plan area had been purchased by incoming settlers by 1867. The historical record indicates that by 1880 the 2,229 farms which existed in the County averaged 309 acres in size; ten years later the 2,886 farms
average 245 acres (LeBaron et al. 1985:77). Although about half the landowners within the Plan area support these statistics, in 1877 half exceeded those averages by holding between several hundred to several thousand acres each (Map 1877).

W. S. M. Wright, who owned four parcels totalling more than 900 acres, was born in Missouri in 1812 and came overland to California in 1849. Settling in Marysville he established a freight line in order to trade and sell goods to miners. Returning to Missouri after only one season, three years later he again crossed the plains, this time with his family and 400 head of cattle. Settling in Sonoma County in 1853, Wright built his homeplace one-and-one-half miles west of Santa Rosa. Bowers’ 1867 map shows this 640-acre farm bordered on the east by Stony Point Road and on the north by Sebastopol Avenue. Wright, who owned 894 additional and adjoining acres on the north side of Sebastopol Avenue, would eventually control 4,500 acres throughout the County. One contemporary writer noted of Wright’s homeplace:

With the exception of ten acres of orchard and vineyard, it is devoted entirely to hay, grain and stock. Among the stock are 140 head of cattle, including a dairy of ninety cows, and twenty-five horses. The improvements upon this magnificent farm are first-class in every respect. A large two-story residence, commodious barns and dairy and out-buildings attest the successful farmer.

The 1877 Thompson map show an orchard and structure along Sebastopol Avenue in the northeast corner of the 640-acre Wright parcel as well as an additional building approximately one-half mile to the west. As late as 1909 at least 629 acres of the homeplace remained in the hands of the Wright family (Lewis 1889:479-480; Maps 1867, 1877 and 1908).

One half mile east of W. S. M. Wright’s property was the western border of Jos. Wright’s parcel. His approximately 240-acres included an orchard and three structures. Although no information on this individual was forthcoming, he may have been a relative of W. S. M. Wright (Map 1877).

Situated between the Jos. and W. S. M. Wright’s properties was a 321-acre parcel owned by John McMinn. McMinn also maintained 160 acres south of Wright’s 640-acre section. This latter McMinn parcel, which was bound on the east by Stony Point Road, included two structures that faced the highway. His 321-acre parcel, bordered on the north by Sebastopol Avenue and on the west by Stony Point Road, represented the McMinn homeplace (Map 1877).
McMinn, who was born in Missouri in May 2, 1839 and arrived in Santa Rosa with his parents at the age of thirteen, inherited the homeplace from his father, Joseph. Over the years John McMinn became one of the leading cattlemen and agriculturist in the region. First indicated on the 1867 Bowers map, Thompson’s 1877 map shows an orchard and one structure on McMinn’s property, both of which fronted Stony Point Road. The family residence was described as a two-story wooden building "constructed in a most substantial manner, and in an unique and highly attractive style of architecture" (Munro-Fraser 1880:650; Clark 1926:657; Maps 1867, 1877).

A 120-acre farm owned by Thomas A. Nickels (Nichols) was situated south of the Wright and McMinn homeplaces. Nichols, a native of Indiana, emigrated to California in 1857 and came to the Santa Rosa area in 1870. His land lay on either side of Stony Point Road and was bordered on the south by the bend in that road. Thompson’s 1877 map shows no orchards on Nichols’ farm, however, two structures were located on the west side of Stony Point Road. By 1900 Nichols had expanded his holding to 150 acres. The Official Map of Sonoma County indicates that in 1908 the land was still in his possession (Munro-Fraser 1880:652-653; Maps 1877, 1900, 1908).

While archival research failed to uncovered any significant information concerning the remainder of the 1877 property owners in the Plan area, historical maps did provide some details concerning land use. The 883-acre Brayton Estate, which was bordered by the Nichols farm on the north, Stony Point Road on the west and Bellevue Road on the south, contained one structure along Stony Point Road. North of the Brayton Estate, on the eastern edge of the Plan area, J. P. Clark and D. B. Shaw, each owned a 100-acre-plus parcel. Both parcels included an orchard and a structure, which were located on the west side of the Northwestern Pacific railroad tracks. North of Sebastopol Avenue, across from John McMinn’s homeplace, J. D. Davidson occupied 181 acres with an orchard and structure facing the roadway. On the western side of the Plan area, bordering W. S. M. Wright’s homeplace, Patrick Leddy owned 720 acres. His orchard and a structure were situated approximately one-tenth mile east of the end of present-day Madera Avenue. Mary and Lilly Leddy still held this land in 1908. While portions of the 240-acre J. Button farm and the 4000-acre John Walker ranch were located in the southeast and southwest corners of the property Plan area, respectively, the orchards and structures on these properties lay outside the Plan area boundaries (Maps 1867, 1877, 1898, 1900).
Although approximately seventeen nineteenth-century structures are presently located within the Plan area, historic resource listings (Praetzellis et al. 1989; DCD 1990; Harris and Clark 1991) indicate that only two are associated with these early Santa Rosa settlers. The vernacular 1873 Nickels residence, along with a second residence and garage, is situated at 2643 Stony Point Road. It appears to be ineligible for listing in the National Register (Praetzellis 1989). The J. D. Davidson 1885 Queen Anne-style home is at 1591 Sebastopol Road. It is in excellent condition and appears eligible for listing in the National Register (Harris and Clark 1991). Neither of these structures are located on any of the development project properties.

City Building Period (1880s-1950s) - By 1869 anticipation of the completion of the transcontinental railroad gave rise to feverish land speculation throughout California. In Santa Rosa, the arrival of the Northwest Pacific Railroad in 1872 as well as the town's multiplying population most likely led to the late nineteenth-century subdivision movement, which consisted of carving "large landholdings into small farm parcels." The first subdivision, the 1883 Hirschfield Tract, split "830 acres into twenty-one lots ranging in size from 10 to 100 acres;" five years later the Phillipps Subdivision was created (Praetzellis et al. 1989:18-19). Collectively these two subdivisions encompassed a large part of the former Brayton Estate (Maps 1877, 1908). By 1900 at least fourteen subdivisions had been established in the southwest Santa Rosa area including the Davidson Tract (1885) on J. D. Davidson farm; the Ludwig Villa Farm Tract (1889) on McMinn's former 160-acre parcel; the Donahue-Wright Ranch Subdivision (1891) on the former W.S.M. Wright property north of Sebastopol Road; the Oaks Subdivision (1894) on John Walkers land in the southwest corner of the Plan area; and the Henry L. Davis Subdivision (1900) on the former McMinn homeplace (Harris and Clark 1991:10-11; Maps 1877, 1908).

Rural subdivisions became popular at the turn of the century, as former rural residents sought the advantages and conveniences of urban life without the expense or sacrifices of actually moving to the city itself. The early subdivisions were large enough to accommodate a successful farming venture. Most of the parcels created in later subdivisions, however, were too small to provide the primary source of income, although they were adequate for home gardens, orchards, and small cash crops of dairy or poultry products (Praetzellis 1989:18).

Between the turn of the century and 1925 approximately seventeen more subdivisions were created in southwest Santa Rosa including the Button Ranch Subdivision (1904/1913) on the J. Button homestead; the Roseland Subdivisions (1902, 1912, 1923) on former Jos. Wright property; the West Roseland Subdivision (1912), a re-subdivision of the 1900 Henry L. Davis Subdivision, again on the

Nevertheless, a building boom did not occur in southwest Santa Rosa and it appears that the subdivisions were never as successful as their developers had hoped.

With many of these subdivisions at least an hour's ride by horse and buggy to Santa Rosa, they could not provide homes to commuters; conversely the small parcel size did not allow the owner to make a living at home (Praetzellis 1989:19).

During the 1920s and 1930s, as more and more people acquired automobiles and the time to reach town was reduced, outlying lots became more popular (Praetzellis 1989:19). Many of the twelve subdivisions established in southwest Santa Rosa between 1926 and 1950 filled up quickly, including an additional development in the West Roseland Subdivision on the former McMinn homestead (Harris and Clark 1991:10-11; Maps 1877 and 1934). Settlement in the Ideal Poultry Farms Subdivision (1928), however, was delayed due to legal disputes surrounding the partition of the 640-acre W. S. M. Wright homestead from which it was carved (Praetzellis 1989:19).

In 1943 the western section of the W. S. M. Wright homestead as well as a large portion of the former Patrick Leddy property became the home of the Santa Rosa Air Center, which included a 7,000-foot-long, X-shaped runway; three hangars; water storage tanks and wells; a sewage plant; nine barracks; and three officers quarters. During World War II, one navy air group, consisting of 250 officers, 2,000 enlisted personnel and 500 civilian employees, was stationed at the base. In 1947, when the Air Center closed, the paved roads as well as the following facilities remained in good condition:

...two large ground school building, administration building, aircraft assembly and repair department, large laundry, mess hall and galley, radio department, carrier aircraft service unit, public works and maintenance departments, ship service building, medical and dental building, officers' club, chief petty officers' club, movie auditorium, gymnasium, garage, supply and storage depot, operations building, control tower, brig, ammunition storage facilities on field, underground ammunition bunkers and complete gurnery range (Press Democrat 1951:2A).

The Navy leased or loaned several buildings to other military groups such as the Santa Rosa Naval Reserve electronics unit, the Sea Bee Reserve Unit, the Army Organized Reserve and the California National Guard. In addition, the Wright School (which was without facilities after the school burned
down) utilized the auditorium, gymnasium and barracks for classrooms, while Santa Rosa Junior College used the officers’ quarters as a dormitory and the officers’ club for faculty parties and school club dances (Press Democrat 1951:2A).

In July 1951, during the Korean War, the Santa Rosa Air Center was reactivated. Four aircraft carrier squadrons, consisting of 600 pilots and crew members, were station at the base. During their stay additional fliers were trained and new jet aircraft was tested. The Air Center, which shut down a second time in February 1952, remains inactive (Wilson 1990).

A comprehensive historic architectural survey of the Southwest Santa Rosa Plan area was accomplished by Harris and Clark (1991).

The Southwest Santa Rosa Master Environmental Assessment included a comprehensive Historic Architectural Survey. Seven hundred twenty four properties were estimated or known to have been constructed prior to 1946. Of these properties, eleven appear eligible for National Register listing, thirty-nine may become eligible for listing, four may become eligible as part of an historic district, twenty-five may be allegeable for local landmark designation based on their own merit, 249 may be eligible for local designation as part of an historic district, with the remaining properties not rated for national or local distinction (Harris and Clark 1991).

Four historic districts are identified within the Plan area: South Olive Park District; Goodman Avenue District, Dutton Avenue District; and Hughes/Sunset Avenue District. Also identified are nine potential historic districts: Sebastopol Road Commercial District; Sebastopol Road Industrial District; U. S. Naval Air Station District; Avalon Avenue District; Burbank Avenue District; McNinn Avenue District; Roseland Avenue District; North Stony Point Road District; and West Avenue District (Harris and Clark 1991).

**IMPACTS AND MITIGATION MEASURES**

**Significant Impacts**

Potential damage to or disturbance of important archaeological or historical resources, resulting from proposed development projects, would be considered significant impacts. An important cultural resource is defined in Appendix K of the CEQA guidelines as one which:
• is associated with an event or person of recognized significance in California or American history, or of recognized scientific importance in prehistory;

• can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential questions;

• has a special quality such as oldest, best example, largest or last surviving example of its kind;

• is at least 100 years old and possesses substantial stratigraphic integrity; or

• involves important research questions that historical research has shown can be answered only with archaeological methods.

The Southwest Santa Rosa Area Plan anticipates development within the 3,800 acres under review. Plan area cultural resources investigations have revealed that high potentials exist for development projects resulting in significant impacts to potentially important cultural resources.

Archaeological Resources

Impact 3.1.9-1

Five prehistoric archaeological sites and five historic archaeological sites are recorded within the Plan area; also, isolated prehistoric cultural materials have been discovered at seven locations, indicating that additional resources are likely present (four of the known archaeological sites are located on development property #30 and the seven isolated finds are located on development properties (#s 3, 14, 16, 24, 26, 27 and 35)). These sites could be disturbed by development. (PS)

Mitigation Measure 3.1.9-1

Those portions of the Plan area for which no development proposal has been submitted that have not been subjected to archaeological field investigations should be studied as part of the development plan and environmental review processes. Based on what is already known about the region, it is reasonable to assume that prehistoric cultural deposits can be found anywhere in the Plan area. It is therefore recommended that no part of the Plan area be exempt from comprehensive archaeological study.

If field reconnaissance results in the recording of prehistoric archaeological sites that can not be avoided and preserved, and the importance of the cultural deposits can not be determined from surface evidence, then subsurface testing programs should take place. Testing procedures should be designed to specifically determine the boundaries of sites, the depositional integrity and the cultural importance of the resources, as per CEQA Appendix K criteria. These investigations should be conducted by qualified professionals knowledgeable in regional prehistory. The testing programs should be conducted within the context of appropriate research considerations and should result in detailed technical reports that define
the exact project impacts to important resources and present comprehensive mitigation programs for addressing those impacts as explained further below.

Development-related impacts to important prehistoric archaeological sites could be mitigated by the following alternatives. (I)

1. Avoidance of archaeological sites through modification of development plans that would allow for the preservation of the resources. Incorporation of site locations into protected open space or parklands would serve this purpose.

2. Covering or "capping" sites with a protective layer of fill. This could be a very good way of mitigating potential impacts in situations where public access may be increased as a result of development. Archaeological monitoring during the filling process would be recommended.

3. In circumstances where archaeological deposits cannot be preserved through avoidance or capping, data recovery through excavation would be the recommended plan. This measure would consist of excavating those portions of the sites that will be adversely impacted. The work should be accomplished within the context of a detailed research design and in accordance with current professional standards. The program should result in the extraction of sufficient volumes of archaeological data so that important regional research considerations can be addressed. The excavations should be accomplished by qualified professionals and detailed technical reports should result.

Archaeological resources located within the Plan area can potentially render research information important to reconstructing and understanding Santa Rosa area prehistory. Based on CEQA criteria, such sites would qualify as important resources and development on archaeological site locations would likely result in significant impacts.

In considering subsurface testing and excavations of prehistoric archaeological sites, consultation with the local Native American community is essential; all aspects of the programs, including the treatment of cultural materials and particularly the removal, study and reinterment of Native American burials should be addressed. All applicable State and local legal requirements concerning these issues should be strictly enforced.

Known historic archaeological resources are present in the Plan area as well. Historical maps show structures that were present on various properties in the past but no longer exist; project-specific archaeological investigations should address the potential for historic archaeological resources. If field reconnaissance results in the recording of historic archaeological deposits and features, supplemental archival research and subsurface testing may be required to determine their importance by CEQA.
Appendix K criteria. If important resources are threatened by development then recommended mitigation alternatives would be similar to those presented for prehistoric archaeological sites.

**Historical Properties**

**Impact 3.1.9-2**

Approximately 724 properties within the Plan area are known or estimated to have been constructed prior to 1946 which could be disturbed by developments. (PS)

Potential impacts to resources that are located on the thirty-five development project properties are reviewed below. Discussions as to whether or not pre-1946 structures meet CEQA criteria as important historic resources, are based on the significance ratings of the buildings presented in Praetzelis et al. (1989), DCD (1990) and Harris and Clark (1991).

**Mitigation Measure 3.1.9-2**

Those portions of the Plan area that have not been subject to site-specific cultural resources evaluation should undergo a similar historic architectural review based on the existing inventories (Praetzelis et al. 1989; DCD 1990; Harris and Clark 1991). No part of the Plan area should be exempt from the process of determining if structures meet CEQA criteria as important historic resources.

If development-related impacts to important historic structures are identified, significant impacts could be mitigated by the following alternatives. (I)

1. Avoidance of historic properties through modification of development plans that would allow for the preservation of the resources at their present locations. This management program could also include restoration of structures to a specific period or theme, particularly within historic districts, and preservation with adaptive re-use.

2. Relocation of historic structures to places where they can be preserved. Community parks and open space provide opportunities in this regard.

3. If other mitigation alternatives can not be implemented and historic properties may be damaged or destroyed, it is recommended that an "Historic American Building Survey" be accomplished for the structures. Such a procedure involves the precise recording of the structures through measurements, drawings and photographs. The documentation of the resources is on standardized forms and is accurate in detail to such an extent that after demolition, the historic structures could be reconstructed from the survey data. Copies of the documents should be filed with all appropriate State and local repositories. This mitigation program could include salvage and selective re-use of building features once the survey is completed.
These mitigation measures would not only reduce significant impacts to important historic resources for CEQA compliance, but would also be in keeping with Santa Rosa Department of Community Development Southwest Area Plan historic preservation goals, objectives and policies.

PROPOSED PROJECTS

SETTING

Refer to the Setting discussion for the Southwest Area Plan for a description of the Setting that would be relevant to the Proposed Projects.

IMPACTS AND MITIGATION MEASURES

The following impact and mitigation discussions are based on the thirty-five proposed projects. Plan maps for these projects are included in Section 2, Project Description.

Project #1: Dutton Place - No evidence of prehistoric or historic archaeological resources was observed on this property. A 1945 minimal traditional structure is located at 2373 Dutton Avenue (APN 043-041-45), which does not appear to meet CEQA criteria as an important historic resource.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #2: Westmeadow Park - No evidence of prehistoric or historic archaeological resources was observed on this property. A circa 1940 barn is located at 1815 Burbank Avenue, which does not appear to meet CEQA criteria as an important historic resource.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #3: Western Gardens

Impact 3.1.9-3

Two pieces of obsidian and two pieces of chert, possibly prehistoric flakes, were found on the property at 1320 Hearn Avenue. Because these items are not regarded as definitive evidence of the presence of an archaeological deposit, no site was recorded. However, the
area is regarded as archaeologically sensitive, with a potential for obscured and/or subsurface prehistoric cultural deposits subject to disturbance. (PS)

Mitigation Measure 3.1.9-3

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would likely be appropriate for determining the boundaries, integrity and importance of the cultural deposits. If important resources are present, that could be impacted by project development, then Mitigation Measure 3.1.9-1 would be recommended. (I)

A 1903 hip roof cottage is located at 1320 Hearn Avenue, which does not appear to meet CEQA criteria as an important historic resource.

Project #4: Fouche Village - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #5: Southcreek Village - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

Impact 3.1.9-4

Two historic structures, one a 1905 Bungalow and the other a 1931 vernacular building, and a 1865 cemetery are located within this development area. The houses and the cemetery would be subject to disturbance and may meet CEQA criteria as important historic resources, as they are included by Harris and Clark (1991) within the potential Burbank Avenue Historic District. (PS)

Mitigation Measure 3.1.9-4

Mitigation alternatives 3.1.9-2 are recommended for the two structures. (I)

Avoidance and preservation of the cemetery may be the only mitigation measure available, particularly if it is indeed determined to be eligible for the National Register as suggested by Harris
and Clark (1991). The current site plan places the cemetery in an open space area, which would be compatible with recommended mitigation. (I)

**Project #6: Baker Subdivision** - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

**Impact 3.1.9-5**

A 1915 Queen Anne-style farmhouse is located at 2875 South Dutton Avenue. It appears to be eligible for local designation as part of an historic district (Harris and Clark 1991) and to meet CEQA criteria as an important historic resource. Development plans suggest the removal or demolition of the house, which would result in potentially significant impacts. (PS)

**Mitigation Measure 3.1.9-5**

Implement Mitigation Measure 3.1.9-2. (I)

**Project #7: Burbank Avenue Condos** - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

A 1930s tract-style house is located at 1780 Burbank Avenue. It appears to be eligible for local distinction as part of the Burbank Avenue Historic District (Harris and Clark 1991) and may meet CEQA criteria as an important resource. Avoidance and preservation of the existing house and adjacent garage are suggested by the site plan, which would result in no significant impacts to the resource. Additional mitigation measures are not recommended, if the development plan remains unchanged and the house is preserved.

**Project #8: Ash Drive** - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.
Project #9: Courtside Village - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

Impact 3.1.9-6

Ten of the eighteen parcels that make up this development property contain historic structures. Seven of the structures do not appear to meet CEQA criteria as important historic resources, while three structures may meet the CEQA criteria as part of an historic district. These buildings are: a 1925 hip roof farmhouse at 3840 Sebastopol Road (APN 035-102-15); a circa 1910 hip roof farmhouse at 3897 Sebastopol Road (APN 035-063-13); and a circa 1920 Craftsman Bungalow at 3928 Sebastopol Road (APN 035-102-20).

The proposed project could result in significant impacts to the three potentially important historic houses. (PS)

Mitigation Measure 3.1.9-6

Implement Mitigation Measure 3.1.9-2. (I)

Project #10: Martin Homeless Housing - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #11: Northpoint Village - No evidence of prehistoric or historic archaeological resources was observed on this property.

A vernacular residence, three gable-roof barns and a garage, which are associated with the turn-of-the-century Boorman Dairy, are located at 2567 Stony Point Road. None of the structures appear to meet CEQA criteria as important historic resources.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #12: Solarium 2010 - No evidence of prehistoric or historic archaeological resources was observed on this property.
A 1949 Mission Revival-style house is located at 712 Brittain Lane (APN 035-251-32), which does not appear to meet CEQA criteria as an important historic resource.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

**Project #13: Mountain View Homes** - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

**Project #14: Lands of Kersch**

**Impact 3.1.9-7**

A single obsidian flake, probably a prehistoric item, was discovered on the property at 2872 Stony Point Road. The single flake is being treated as an isolate and no archaeological site was recorded. However, the area is regarded as archaeologically sensitive, with a potential for obscured and/or subsurface prehistoric cultural deposits subject to disturbance. (PS)

**Mitigation Measure 3.1.9-7**

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would be recommended for purposes of determining the boundaries, integrity and importance of the site. If important resources are present, that could be impacted by project development, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)

No historic structures are documented on the property.

**Project #15: Giffen Estates** - No evidence of prehistoric or historic archaeological resources was observed on this property. A 1940 vernacular building is located at 2150 Giffen Avenue, which does not appear to meet CEQA criteria as an important historic resources.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.
**Project #16: Lands of Wisner**

**Impact 3.1.9-8**

A prehistoric obsidian point fragment was discovered on the property, which is considered to be an isolated find; however, the location is regarded as archaeologically sensitive with a potential for obscured and/or subsurface cultural deposits subject to disturbance. (PS)

**Mitigation Measure 3.1.9-8**

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would be recommended for purposes of determining the boundaries, integrity and importance of the site. If important resources are present, that could be impacted by project development, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)

The turn-of-the-century Fitzgerald Farmstead was located on the project area (APN 134-042-021). Harris and Clark (1991) describe the residence as a circa 1900 Queen Anne-style Farmhouse, in good condition, and possibly eligible for National Register listing. The farmstead complex may meet CEQA criteria as an important historic resource.

**Impact 3.1.9-9**

Project development plans indicate that the Farmhouse complex would be removed, resulting in potentially significant impacts if the complex is an important historic resource. (PS)

**Mitigation Measure 3.1.9-9**

Implement Mitigation Measure 3.1.9-2. (I)

**Project #17: Pero Apartments** - Project #s 17 and 15 share the same address. See Project #15 for impacts and mitigation discussions.

**Project #18: Burbank Housing** - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

The 1923 Bud J. Peter Farmstead is located on the property. Harris and Clark (1991) found the 1923 farmstead residence to be in good condition and rated it as possibly eligible for the National Register
as part of the potential North Stony Point Road Historic District. The complex may meet CEQA criteria as an important historic resource.

**Impact 3.1.9-10**

Project development plans suggest the removal of the farmstead structures, which would result in potentially significant impacts if the complex is an important resource. (PS)

**Mitigation Measure 3.1.9-10**

Implement Mitigation Measure 3.1.9-2. (I)

**Project #19 (A and B): Skidmore Acres** - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

**Project #20: South Dutton (Weiss/Grossman)** - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

Two structures are located at 3012 South Dutton Avenue (APN 043-122-07). One is a 1904 Queen Anne-style farmhouse (George Habors residence) and the other is a circa 1920 Brick Carriage House. Both appear eligible for local designation as part of an historic district (Harris and Clark 1991), and they appear to meet CEQA criteria as important historic resources.

**Impact 3.1.9-11**

Project development plans suggest that two historically important structures will be removed, which would result in potentially significant impacts. (PS)

**Mitigation Measure 3.1.9-11**

Implement Mitigation Measure 3.1.9-2. (I)
Project #21: Orchard Park - No evidence of prehistoric or historic archaeological resources was observed on this property. A circa 1930 farmhouse is located at 3365 Moorland Avenue, which does not appear to meet CEQA criteria as an important historic resource.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #22: Springfield - No evidence of prehistoric or historic archaeological resources was observed on the property and no impacts to archaeological sites are anticipated.

Five of the parcels that make up this development property contain buildings, none of which appear to meet CEQA criteria as important historical resources. It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #23: Young's Dutton Place - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #24: Lara Subdivision

Impact 3.1.9-12

A utilized obsidian flake, prehistoric in origin, was found on the 1119 Burbank Avenue property. It is being treated as an isolated find as no other cultural materials were discovered at that location. However, the area is regarded as archaeologically sensitive with a potential for obscured and/or subsurface cultural deposits subject to disturbance. (PS)

Mitigation Measure 3.1.9-12

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would be recommended for purposes of determining the boundaries, integrity and importance of the site. If important resources are present, that could be impacted by project construction, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)
No historic structures are documented on the property.

**Project #25: Patrick Brennan Acres** - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

**Project #26 and #32: California Stony Point/Bates Investment Property**

**Impact 3.1.9-13**

A single obsidian artifact was discovered on the property at 2701 Stony Point Road (Bryne 1992a). No other cultural materials were found in the area and the artifact is being treated as a prehistoric isolate. However, the location is regarded as archaeologically sensitive with a potential for obscured and/or subsurface cultural deposits subject to disturbance. (PS)

**Mitigation Measure 3.1.9-13**

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would be recommended for purposes of determining the bound-aries, integrity and importance of the site. If important resources are present, that could be impacted by project development, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)

No historic structures are documented on the property.

**Project #27: Lands of Pierre**

**Impact 3.1.9-14**

Two prehistoric artifacts were discovered on the property at 2944 South Dutton Avenue (Bryne 1992b). No additional prehistoric cultural materials were found at that location and the artifacts are being treated as isolates. However, the property is regarded as archaeologically sensitive with a potential for obscured and/or subsurface cultural deposits subject to disturbance. (PS)

**Mitigation Measure 3.1.9-14**

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that
time, then subsurface testing procedures would be recommended for purposes of determining the bound-aries, integrity and importance of the site. If important resources are present, that could be impacted by project development, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)

A 1920 Italianate-style building is located on one of the two parcels that make up the project area (APN 043-122-13). The structure, while not identified as a National Register eligible or local designation eligible resource based on its own merits, appears to be eligible for local designation as part of an historic district (Harris and Clark 1991). The building probably meets CEQA criteria as part of an important historic resource.

Development plans suggest that the building will be preserved in the northwest corner of the property. If these plans remain unchanged, then further mitigation measures need not be considered.

**Project #28: Valena (Village Station)** - No evidence of prehistoric or historic archaeological resources was observed on this property. A pre-1946 house is located at 3675 Sebastopol Road, which does not appear to meet CEQA criteria as an important historic resources.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

**Project #29: Bellevue Ranch** - No evidence of prehistoric or historic archaeological resources was observed on any of the seventeen individual parcels that make up the twelve development areas for this project and no impacts to archaeological sites are anticipated.

No historic structures are identified on the project site.

**Impact 3.1.9-15**

Two important historic resources may be subject to significant impacts as a result of development on areas 7 and 10 of Project #29. (PS)

**Mitigation Measure 3.1.9-15**

Implement Mitigation Measure 3.1.9-2. (I)
Project #30: Air Center Project

Impact 3.1.9-16

Four archaeological sites (three prehistoric and one historic) are recorded on the property. These sites may contain information important to regional research considerations for prehistoric and early historic periods. The sites may be subject to disturbance impacts from project development. (PS)

Mitigation Measure 3.1.9-16

If the archaeologic resources cannot be totally avoided in development planning, then a subsurface testing program is recommended.

Testing procedures should be designed to specifically determine the boundaries of the sites, their depositional integrity and cultural importance as per CEQA Appendix K criteria. The investigations should be conducted by a qualified professional and should result in a detailed technical report.

If the sites are found to be important archaeological resources, implement Mitigation Measure 3.1.9-1. (I)

Harris and Clark (1991) discuss the Santa Rosa Air Center as a potential historic district; however, no historic architectural evaluations are developed regarding the Kodiak Hangar on Site #30, or other structures and features that would be located in the potential district. Until the architectural importance of the Air Center structure and other structures of the potential district are evaluated, CEQA criteria can not be applied to determine if significant impacts will occur. In the event that important historic resources are identified, that will be subject to significant impacts as a result of project development, recommended mitigation measures would be the same as those described for Mitigation Measure 3.1.9-2.

Project #31: Ken Martin Property - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #32: (see Project #26)
Project #33: Bellevue Interchange - Preliminary review of this project area resulted in the identification of no archaeological resources or historic properties. The project will eventually be subject to Caltrans Section 106 cultural resources review, which will require Area of Potential Effects (APE) mapping of the precise project boundaries, an Archaeological Survey Report, an Historic Architectural Survey Report and an Historic Properties Survey Report, all to be prepared according to strict Caltrans guidelines.

Project #34: New Southwest Fire Station - No evidence of prehistoric or historic archaeological resources was observed on the property, nor are any historic structures present.

It is concluded that no impacts to important archaeological or historic resources will occur as a result of planned development on the property; therefore, no mitigation measures are recommended.

Project #35: Bellevue Elementary School

Impact 3.1.9-17

Two obsidian flakes, possibly from the prehistoric period, were discovered on the property. No additional cultural materials was found and the two flakes are considered to be isolated finds; however, the area is regarded as archaeologically sensitive with a potential for obscured and/or buried prehistoric cultural deposits subject to disturbance. (PS)

Mitigation Measure 3.1.9-17

It is recommended that archaeological monitoring take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, then subsurface testing procedures would be recommended for purposes of determining the boundaries, integrity and importance of the site. If important resources are presented, that could be impacted by construction, then recommended mitigation measures would be the same as described in Mitigation Measure 3.1.9-1. (I)

Unknown Resources

Field investigations and archival research have resulted in the identification of archaeological sites and sensitive locations within the Southwest Santa Rosa Plan Area and thirty-five identified project properties. It is cautioned that additional archaeological sites may be buried anywhere in the Plan area, including on the identified project properties.
In the event that unsuspected archaeological remains are discovered during subsurface construction, land alteration work in the vicinity of the find should be halted and a qualified archaeologist should be consulted. Prompt evaluations could then be made regarding the finds and a resource management plan that is consistent with CEQA requirements could then be implemented. If prehistoric archaeological deposits are discovered, local Native American organizations should be consulted and involved in making resource management decisions. All applicable State and local legal requirements concerning the treatment of cultural materials and Native American burials should be enforced.
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92244 3.1.9-48
<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Publisher and Location</th>
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<tr>
<td>1976</td>
<td>California Inventory of Historic Resources</td>
<td>Published by the Resources Agency, Department of Parks and Recreation, State of California, Sacramento.</td>
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<td>1990</td>
<td>Historic Properties Inventory. Cultural Heritage Survey, Department of Community Development, Santa Rosa.</td>
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<td>1988</td>
<td>Five Views: An Ethnic Sites Survey for California.</td>
<td>Published by the Resources Agency, Department of Parks and Recreation, State of California, Sacramento.</td>
</tr>
<tr>
<td>1992</td>
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<td></td>
</tr>
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<td>1911</td>
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</tr>
<tr>
<td>1988</td>
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</tr>
<tr>
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3.2 PHYSICAL/BIOLOGICAL ISSUES

3.2.1. SOILS, GEOLOGY AND SEISMICITY

INTRODUCTION

Consideration of soils, geology and seismicity conditions is an important aspect of all development in the nine counties surrounding San Francisco Bay (the Bay Area). Although most projects have little or no effect on the geology of the Bay Area, most of them have some effect on soils and topography, and all may be affected by certain geologic events, such as earthquakes or landslides. The purposes of reviewing the soils, geology and seismicity information of any project are: (1) to identify potentially hazardous conditions; (2) to identify potential impacts of the proposed project; and (3) to provide techniques to reduce, eliminate or avoid these conditions and impacts.

The regional context is important because the seismic forces that will affect the Southwest Santa Rosa Area are regional in nature: that is, they may be generated outside the area, and possibly outside the City. However, the effects of these forces must be accommodated within the Plan Area and within the various project sites, in compliance with regulations and guidelines established by the State and the City. Figure 3.2.1-1 is a regional geologic map of the Bay Area, showing the general distribution of the major groups of rock units, the approximate position of the major fault zones, and the location of the Southwest Santa Rosa Area in relation to these features. Table 3.2.1-1 contains the estimated maximum parameters for known faults affecting the Southwest Santa Rosa vicinity. Terms unfamiliar to the general public are defined in the glossary under endnote 1.¹

Major sources of information include previous geotechnical investigations in the Southwest Area, maps and tables in the Safety Element of the General Plan Santa Rosa 2010, the Soil Survey of Sonoma County, published in 1972 by the United States Department of Agriculture Soil Conservation Service, and site reconnaissance conducted for preparing this EIR.

SOUTHWEST AREA PLAN

SETTING

Regional Geology

The regional geologic framework of Sonoma County can be understood through the theory of plate tectonics. Earth’s mantle is composed of several large plates that move relative to each other.
<table>
<thead>
<tr>
<th>Fault</th>
<th>Rodgers Creek</th>
<th>Healdsburg</th>
<th>San Andreas</th>
<th>Hayward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude$^1$</td>
<td>6.2 - 7</td>
<td>6.2 - 6.7</td>
<td>8.3</td>
<td>6.5 - 7.25</td>
</tr>
<tr>
<td>Duration of Strong Shaking$^2$ (Seconds)</td>
<td>18 - 30</td>
<td>18 - 30</td>
<td>30 - 60</td>
<td>18 - 30</td>
</tr>
<tr>
<td>Maximum Intensity$^3$ (MMI)</td>
<td>VIII - IX</td>
<td>VIII - IX</td>
<td>IX - XI</td>
<td>VIII - IX</td>
</tr>
<tr>
<td>Peak Horizontal Accelerations in Rock/Stiff Soil$^4$</td>
<td>.30 - .50</td>
<td>.10 - .25</td>
<td>.20 - .35</td>
<td>.05 - .20</td>
</tr>
<tr>
<td>Approximate Distance from Fault in Miles</td>
<td>3 E</td>
<td>19 N</td>
<td>17 W</td>
<td>31 SE</td>
</tr>
</tbody>
</table>

1 The first listed magnitude for each fault is the maximum probable earthquake (MPE); the second is the maximum credible earthquake (MCE). The maximum probable earthquake for any fault is equal to the largest historical earthquake; for the San Andreas fault the MCE equals the MPE.
2 Bracketed duration for ground motions are 0.5g within 10 miles of the fault. Estimates based on relationships developed by Bolt (1973).
3 Estimate based on relationships developed by Richter (1958).
The San Andreas fault zone is at the junction of two such plates. The Pacific plate, on the west side of the zone, is moving north relative to the North American plate on the east side. One of the results of this movement is the regional rock deformation that provides the general northwest trend of valleys and ridges in Sonoma County. This is clearly visible in the orientation of the Sonoma Mountains, northeast of the Llano de Santa Rosa where the Southwest Santa Rosa Plan Area is located. Another result of plate movement is the regional seismicity that Sonoma County has in common with the rest of the Bay Area.\(^2\)

All of the geologic formations in the Santa Rosa area are on the North American plate. The oldest bedrock formations exposed in area are the Petaluma claystone/mudstone and the Sonoma Volcanics (lava flows and volcanic ash), both of the Tertiary period (deposited between 7 million and 1.6 million years ago).\(^3\) Gravels, sands, silts and clays of the major alluvial fans in the northwest-trending valleys are younger, of the Quaternary in age (the last 1.6 million years).\(^4\) Fluvial sand, silt and clay was deposited in local streams cut into the alluvial fans during the latest several thousand years of this period.\(^5\)

### Regional Seismicity

Sonoma County, as part of the Bay Area, is in one of the most active seismic regions in the United States. Each year, low and moderate magnitude (M) earthquakes occurring within or near the Bay Area are felt by residents of the County. Since the mid-nineteenth century about 150 local earthquakes have been felt in the County. Ten of these temblors were damaging; those of 1906 and 1969 being the most destructive. The April 1906 earthquake on the San Andreas fault registered about M8.3 on the Richter scale and practically destroyed the business district of the City of Santa Rosa.\(^6\) The October 1969 earthquakes on the Healdsburg fault registered M5.6 and M5.7. No deaths occurred; several million dollars damage was done including numerous breaks in water system pipes. More recently, the M4.9 earthquake along the Hayward fault (26 January 1986) was felt in Sonoma County, but no major damage was reported to utilities or facilities. The M7.1 Loma Prieta earthquake of 17 October 1989 on the San Andreas fault, caused severe damage through-out the Bay Area, but not extensively in the vicinity of Santa Rosa. Current estimates of the recurrence interval for damaging earthquakes in the County range between 20 and 30 years.\(^7\)

There are several potentially active faults zones that could affect development projects in the City of Santa Rosa. These include faults that are historically active (during the last 200 years), those that
have been active in the geologically recent past (about the last 10,000 years, usually referred to as the Holocene epoch), and those that have been active at some time during the Quaternary geologic period (the last 1.6 million years). The San Andreas, Healdsburg, and Rodgers Creek fault zones are all, at least partially, historically active. Parts of each of the major fault zones have been classified as Holocene or Quaternary depending on the age of the evidence of the most recent movement.8

The Rodgers Creek fault passes about three miles east of the Southwest Santa Rosa Plan Area. The east half of the Plan Area may be crossed by a splinter trace of the Rodgers Creek fault. The Rodgers Creek fault is capable of generating a maximum credible earthquake (MCE) of M7.0; the Healdsburg fault, about 19 miles to the north, an M6.7 earthquake; and the northern section of the San Andreas, about 17 miles to the west, an M8.3 earthquake.9 Earthquakes of these magnitudes are sufficient to create horizontal ground accelerations in bedrock and in stiff unconsolidated deposits severe enough to cause major damage to structures, foundations and underground pipelines that were not designed to resist the lateral forces generated by earthquakes.10

Other faults that exist in the vicinity of the City of Santa Rosa are pre-Quaternary in origin, generally being related to the Coastal thrust belt or the Coast Range thrust. They were active tens of millions of years ago, but have shown no evidence of activity during the last 1.6 million years.11

Applicable Policies and Regulations

State Policies and Regulations. The major State legislation regarding earthquake fault zones is the Alquist-Priolo Special Studies Zones Act of 1972. In 1972, the State of California began delineating Special Studies Zones around active faults and some potentially active faults in the State. The purpose of the Act is to regulate development near active faults and thereby reduce the hazards of surface fault rupture. The Act has resulted in preparation of maps delineating Special Studies Zones to include, among others, recently active segments of the Healdsburg-Rodgers Creek fault. The Zones are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. The Act provides for special considerations if developments are planned in these areas adjacent to active or potentially active faults. Proposed construction within a Special Studies Zone may be permitted only following the completion of detailed geologic investigations and a fault location report prepared by a California Registered Geologist.12 The Southwest Area is not crossed

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by an Alquist-Priolo Special Studies Zone, but if the splinter trace of the Rodgers Creek fault that may cross the Plan Area if found to be active, a Special Studies Zone would be established around it.

The major State regulations regarding geo-seismic hazards, other than surface faulting, are contained in Title 24, Part 2, California Uniform Building Code (CUBC). The CUBC applies to public buildings and a large percentage of private buildings in the State. It is based on the current federal Uniform Building Code, but contains additions, amendments and repeals that are specific to building conditions and structural requirements in the State of California. Local codes are permitted to be more restrictive than Title 24, but are required to be no less restrictive. Chapter 23 of the CUBC deals with General Design Requirements, including (but not limited to) regulations governing seismically resistant construction. Chapters 29 and 70 deal with excavations, foundations, retaining walls, and grading, including (but not limited to) requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage and erosion control. The Southwest Santa Rosa Plan Area is in the CUBC Seismic Zone 4, as is about 45 percent of the State, and therefore is required to meet the most stringent CUBC construction standards.

The major State legislation regarding mineral resource zones is the Surface Mining and Reclamation Act of 1975. Part of the purpose of the act is to classify mineral resources in the State and to transmit the information to local governments which regulate land use in each region of the State. Local governments are responsible for designating lands that contain regionally significant mineral resources in the local General Plans to assure resource conservation in areas of intensive competing land uses. The law has resulted in preparation of Mineral Land Classification Maps delineating Mineral Resource Zones (MRZ) 1 through 4 for aggregate resources (sand, gravel and stone) in the City of Santa Rosa. The Southwest Plan Area is mapped as MRZ-1, an area where there is adequate information to indicate that no significant mineral deposits are present.

City of Santa Rosa Policies and Regulations. City policies that relate to resource conservation and protection within the Plan Area as addressed in Natural Resource Conservation Element and the Safety Element of the Southwest Area Plan are intended to reduce or eliminate the impacts of development on waterways and groundwater. Issues of grading, erosion control and seismic safety issues are addressed in the City's General Plan and cover the Southwest Plan Area.
Southwest Plan Area

Data Sources. A Geotechnical Investigation has not been prepared specifically for the Southwest Santa Rosa Plan Area, but Preliminary Soils Investigations exist for several of the properties within the Area. The Area also is covered by several regional studies, published by federal, State and local agencies.

Topography. The Plan Area is on the floor of the Santa Rosa Valley in the Sonoma Mountains of the California Coast Ranges. Elevations within the Area range from about 90 feet above mean sea level (+90 feet msl) along Ludwig Avenue in the southwest corner of the Area to about +150 feet msl near the intersection of Highways 101 and 12, in the northeast corner of the Area. Field inspection indicates that slopes across the entire Area are less than 1 percent, except along the banks of the drainage ways, where short slopes (less than 5 feet) are as steep as 50 percent.

Soils. The soils of Sonoma County belong to two major groups which are further subdivided into 15 associations. The major soil groups are related to the substrate on which the soils have developed. One association is represented in the Southwest Santa Rosa Plan Area. The Huichica-Wright-Zamora soils on flood plains, terraces and alluvial fans were developed on the unconsolidated deposits of the valleys and shores. This association covers most of the Santa Rosa Plain and is present throughout the Plan Area. These soils are somewhat poorly drained to well drained, nearly level, loams to silty clay loams. The principal use of these soils is for pasture and hay.

Each Soil Association is subdivided into soil types based on a variety of distinguishing characteristics, such as texture, slope, and agricultural capability. The soil types in the Southwest Santa Rosa Plan Area are shown in Figure 3.2.1-2, and their characteristics, pertinent to development capability, are listed in Table 3.2.1-2. The soils tend to be clays and clay loams, relatively impermeable, moderately to highly expansive, prone to settlement, and moderately to highly corrosive to untreated steel and concrete. In their undisturbed state, erosion hazard is low because of their low slopes and fine texture.

With the exception of the shallow, wet phase of the Wright loam in the southeast and northwest corners of the Plan Area, the soils in the Area meet the criteria for Prime Farmland or Farmland of Statewide Importance as outlined in the United States Department of Agriculture's Land Inventory and Monitoring Project for Sonoma County. However, none of the Plan Area is classed as Prime
<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Percolation Rate</th>
<th>Expansion Potential</th>
<th>Erosion Hazard</th>
<th>Soil Strength</th>
<th>Corrosion Hazard</th>
<th>Agricultural Capability Class</th>
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</thead>
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<td>Alluvial land</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>II</td>
</tr>
<tr>
<td>Clear Lake clay</td>
<td>$S^2$</td>
<td>$H^3$</td>
<td>$VL^3$</td>
<td>$P^4$</td>
<td>$H^3$</td>
<td>II, III</td>
</tr>
<tr>
<td>Pajaro clay loam</td>
<td>MS</td>
<td>L</td>
<td>VL</td>
<td>F</td>
<td>M</td>
<td>III</td>
</tr>
<tr>
<td>Wright loam</td>
<td>M-VS</td>
<td>L-H</td>
<td>L-M</td>
<td>F-P</td>
<td>H</td>
<td>III, IV</td>
</tr>
<tr>
<td>Yolo clayey to gravelly loam</td>
<td>M</td>
<td>L-M</td>
<td>L</td>
<td>F-P</td>
<td>L</td>
<td>I, II</td>
</tr>
<tr>
<td>Zamora silty clay loam</td>
<td>MS</td>
<td>M-H</td>
<td>L</td>
<td>F-P</td>
<td>M-H</td>
<td>I</td>
</tr>
</tbody>
</table>

1 See Figure 3.2.1-2 for distribution of soil units.
2 VR = Very Rapid
R = Rapid
MR = Moderately Rapid
M = Moderate
MS = Moderately Slow
S = Slow
VS = Very Slow
3 VH = Very High
H = High
M = Moderate
L = Low
VL = Very Low
G = Good
F = Fair
P = Poor
4
5 I = Few Limitations
II = Moderate Limitations
III = Severe Limitations
IV = Very Severe Limitations
V = Impractical to Cultivate
VI = Severe Limitations; Generally Unsuitable for Cultivation
VII = Very Severe Limitations; Unsuitable for Cultivation
VIII = Precluded from Use for Commercial Planting

Source: USDA — SCS, 1972
Farmland or Farmland of Statewide Importance. As shown in Figure 3.2.1-2 (Section 3.1.2, Land Use), about 848 acres of the Area is classed as Farmland of Local Importance. The remainder of the Plan Area is classed as Developed Land or Other Land. The proposed development of the Plan Area would reduce the agricultural potential of the Area by converting the Farmland of Local Importance to non-agricultural uses (see Section 3.1.2, Land Use, for additional information regarding farmlands).\textsuperscript{15}

Expansive soils occur throughout the Plan Area. Specific treatments to eliminate expansion of soils include, but are not limited to, grouting, recompaction and replacement with non-expansive material. Each site must be evaluated to determine the particular treatment that is most appropriate. Because expansive soils are common throughout the City, contractors and soil testing firms are familiar with the procedures to eliminate the problems involved.

Grading is expected to be minimal, because of the low topographic relief across the sites within the Plan Area, and standard erosion control and trench wall support procedures would be applied. Some caving is expected in the coarser sand and gravel materials and erosion could become a problem if grading extended into the wet season. Most soils in the Plan Area have low erosion potential in their natural condition because of low slopes and a mixture of fine and coarse grain sizes. However, disrupted soils become more erosion-prone unless specific measures are taken to control erosion.

Geologic Units.\textsuperscript{16} There are three types of unconsolidated sedimentary deposits in the Plan Area: alluvial fan deposits, fluvial deposits, and older alluvial deposits. The distribution of these geologic units in the Plan Area is shown in Figure 3.2.1-3. The younger alluvial fan deposits are generally fine- to medium-grained, but do contain minor amounts of gravel. The fluvial deposits are all fine-grained (clay, silt, and fine sand). The older alluvium is coarse material (coarse sand and gravel). Unconsolidated sedimentary deposits represent material eroded from the hills to the east of the Plan Area and deposited in ancient river channels or as alluvial fans. They are easily excavated, but will not stand in steep slopes. The clayey material is prone to expansion and does not drain easily. The coarser-grained sediments (sand and gravel) drain readily and there is a possibility (although a very low one) that some pockets of liquefiable sand exist within these deposits.

Faults. The known active fault traces closest to the Plan Area are those of the Rodgers Creek fault, about three miles to the east. This is the only fault in the vicinity of Santa Rosa that is zoned by the
State under the Alquist-Priolo Special Studies Zone Act of 1972. No other Special Studies Zones or known active faults cross or trend toward the Plan Area.\(^{17}\) These traces of the Rodgers Creek fault are not historically active, but show evidence of activity during the last 10,000 years.\(^{18}\) The fault is capable of generating an MCE of M7.0 and peak horizontal ground accelerations in excess of 0.6g. Groundshaking intensity associated with this event is expected to be at least VIII on the Modified Mercalli Intensity (MMI) Scale. MMI VIII causes slight damage in specially designed structures, but considerable damage to ordinarily substantial buildings. An earthquake of this magnitude would be sufficient to create peak accelerations in stiff soil (gravelly clay) as high as 0.5g throughout the Plan Area; severe enough to cause major damage to structures, foundations and underground utility lines.\(^{19}\) In looser unconsolidated deposits (sand) close to the epicenter, peak accelerations could be higher.\(^{20}\) Seismic ground response in the vicinity of the fault trace could cause severe damage to older commercial or residential buildings that were not properly constructed and secured to their foundations. For buildings constructed to current California Uniform Building Code seismic-resistance standards, the damage potential is lower, but still not insubstantial, unless the buildings are constructed using site-specific design to address the proximity of the fault.

The east half of the Plan Area may be crossed by a splinter trace of the Rodgers Creek fault. This feature is mapped diagonally through the Area from the intersection of Highway 12 and Stony Point Road to the intersection of Highway 101 and Bellevue Avenue, based on work completed in 1974 for the California Division of Mines and Geology study *Geology for Planning in Sonoma County.*\(^{21}\) That report shows a "possibly active fault" extending from the Rodgers Creek fault, northwest through Bellevue, and connecting with a previously mapped fault trace east of Trenton. The fault east of Trenton was thought to a post-Pliocene trace (less than 1.6 million years old).\(^{22}\) The current CDMG map of the Santa Rosa Quadrangle does not show the same connection between the Rodgers Creek fault and the fault east of Trenton, and indicates the existence of a fault trace across the Plan Area is highly speculative.\(^{23}\) The indication is that there is no strong evidence for movement of this fault during the last 700,000 years. The CDMG has revised the Special Studies Zones in the vicinity of Santa Rosa as recently as 1983, and has not placed either of the speculatively located faults in a Special Studies Zone based on the lack of evidence of rupture of geologically young deposits. This does not mean the fault does not exist, but that sufficient information has not been found to confirm or deny its existence at this location.
Geo-Seismic Hazards and Constraints. The Plan Area contains moderate-risk and, potentially, high-risk geo-seismic hazard areas. The possible presence of an active fault (surface rupture hazard) is a high-risk issue. The effects of regional seismicity (groundshaking and associated ground failure) are moderate- to high-risk issues. The presence of potentially unstable foundation support material in the form of expansive soils, weak soils, and shallow groundwater table (potentially saturated soils) are moderate-risk issues. Construction-related disruption and erosion of soils also are moderate-risk issues.

Fault rupture is a potentially significant impact because a splinter trace of the Rodgers Creek fault may pass through the Plan Area. The portion of the trace that has been clearly identified (southeast of the Plan Area) by the CDMG was active within the period from 10,000 to 700,000 years before present. The trace trends toward the Plan Area, but has not been identified in the sediments less than 10,000 years old within the Plan Area. The CDMG does not consider this fault active and no Alquist-Priolo Special Studies Zone restrictions have been placed on it. The fault remains a concern because it appeared in the City's Master Environmental Assessment for the Southwest Area (MEA), which was based on earlier geologic data. Although the fault now is considered inactive, its possible presence near or on the Bellevue Interchange (see below) should be taken into consideration. Its possible presence in the Plan Area and on three project sites (see below) also needs to be addressed.

Groundshaking hazards in the Plan Area are classified by the CDMG as "Moderate" to "High" because of the thickness (up to 100 feet) of unconsolidated alluvium and the generally shallow (less than 20 feet) groundwater table, both of which could contribute to secondary ground failures (such as liquefaction) caused by seismic vibration. Peak horizontal ground accelerations in the Plan Area are expected to be near 0.5 g (50% of the force of gravity), which means the standards for California Uniform Building Code Seismic Zone 4 would be the minimum requirements for site design and would need to be checked on a site-specific basis to ensure appropriate seismic-resistant construction.

Liquefaction potential generally is low because of the mixture of coarse and fine sediments underlying the Plan Area. However, liquefaction needs to be addressed at each site because conditions such as depth to water table, uniformity of grain size and mix of grain size can vary dramatically within alluvial deposits. In general the areas underlain by poorly sorted older alluvium are less liquefaction-prone than those underlain by the younger fine sand deposits.
The non-hazardous constraint for the Plan Area is the conversion of Locally Important Farmland to non-agricultural uses. "Prime Farmland," as defined by the Farmland Mapping and Monitoring Program, does not occur within the Plan Area. However, "Locally Important Farmland" does occur on some sites proposed for development. Conversion of these farmlands and soils to non-agricultural use is considered a significant impact under the California Environmental Quality Act Guidelines, and consideration must be given to mitigation procedures (see Section 3.1.2, Land Use). Class I and II soils, as defined by the Soil Conservation Service, occur throughout the Plan Area, but because of prior urban development, generally are not classed as agriculturally productive lands.

**Infrastructure**

**Topography.** The site of the proposed Bellevue interchange is at about +117 feet msl. The land slopes very gently to the southwest at less than a 1 percent grade.

**Soils.** The site is covered by Wright loam. The soil is expansive, corrosive, has fair to poor compressive strength, and very low erosion hazard in its undisturbed state.

**Geologic Units.** The site is underlain by older alluvial gravel and sand deposits, which generally are not liquefaction-prone because of their density and grain size distribution.

**Faults.** The site may be crossed by the splinter trace of the Rodgers Creek fault that may be present in the Plan Area. The fault trace has been identified in the City's MEA and in earlier studies by the CDMG, but is not currently classified as active and is not in a Special Studies Zone. The southeast end of the trace, which trends toward the site, is classified as "Quaternary" because it shows evidence of movement during the period from 10,000 to 700,000 years ago, but not within the last 10,000 years (the "Holocene" period). The known active fault traces closest to the site are those of the Rodgers Creek fault, about 3 miles to the east.

**IMPACTS AND MITIGATION MEASURES**

**Methodology**

The examination of geology, soils and seismicity issues in this Environmental Impact Report is based on information obtained from:
• Site observation;

• Review of existing published literature, including documents published by City, County, State and Federal agencies, texts dealing with geotechnical conditions in the San Francisco Bay Area;

• Review of reports, bore-hole logs and cross-sections provided by the sponsors of the various development projects; and

• Review of concept plans for grading and construction at the various project sites.

Standards of Significance

Section 15382 of the California Environmental Quality Act Guidelines defines a significant effect on the geologic environment as "... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project ..." Further, Section 15126 (a) of the Guidelines stipulates that the Environmental Impact Report analyze "... significant environmental effects the project might cause by bringing development and people into the area affected." The example used in the Guidelines is that of a subdivision astride an active fault having the effect of attracting people to an area where they would be exposed to seismic hazards. The Guidelines lead to two criteria:

• The basic criterion applied to the analysis of the impacts of excavation, construction and grading, is whether or not implementation of the Southwest Area Plan, including the Bellevue Avenue Interchange, as proposed, would create a fundamental change in the soil, geologic, or seismic conditions, that would last beyond the initial development period.

• The basic criterion applied to the analysis of the geo-seismic hazards that could endanger the users of the project sites, or adjacent areas, during the lifetime of the projects is whether or not implementation of the Southwest Area Plan, including the Bellevue Avenue Interchange, as proposed, would increase exposure of people in the vicinity to unmitigated seismic hazards, soil or slope instability hazards, or other hazardous geotechnical conditions.

Impacts in either of these categories would be considered unavoidable significant effects of the project, if they could not be (a) reduced to an acceptable level of risk, (b) eliminated, or (c) avoided by using existing techniques, generally recognized by geotechnical consultants in the Bay Area to be applicable and feasible.

Each impact identified in the following discussion is indicated as a significant (S), potentially significant (PS), or insignificant (I) impact of the Area Plan. Mitigation measures to reduce each impact to an
insignificant level are listed and described. One unavoidable significant effect was identified: the loss of Locally Important Farmland through conversion to non-agricultural uses.

Impact 3.2.1-1

Sites in the northeast half of the Plan Area may be subject to the damaging effects of surface rupture along a possible splinter trace of the Rodgers Creek fault during the useful economic life of the Area Plan. (PS)

Surface rupturing along the trace of any fault affects all types of material; however, it does not always show clearly in unconsolidated soils or alluvium, such as occur in the Southwest Plan Area. Damage caused by surface rupturing is limited to the actual location of the fault-line break, unlike damage from groundshaking which can occur at great distances from the fault. Even a moderate earthquake can be accompanied by enough surface rupturing to damage foundations and buried utility lines that have not been adequately protected where they cross fault traces.

Under the Alquist-Priolo Special Studies Zone Act of 1972, the State is required to delineate "Special Studies Zones" along known active faults to regulate development near active faults in order to mitigate the hazard of surface fault-rupture.24 No Special Studies zone has been delineated along this possible splinter trace of the Rodgers Creek fault, because its location and existence are questionable. However, the fact that a possible fault trace, of uncertain alignment across the Plan Area, has been shown on several different maps over the past 40 years indicates that concern remains regarding the issue.

Mitigation Measure 3.2.1-1

Require the recommendations of site-specific fault trace location and activity level investigations, conducted by a California Certified Engineering Geologist, Registered Geologist or Geotechnical Engineer, to be incorporated in the land use design for portions of projects along the trace of the possible splinter fault that crosses the Plan Area (as shown in Figure 3.1.2-3). Implementation of this mitigation measure, as outlined below, would reduce this impact to an insignificant level. (l)

A. If an active fault trace is found, the minimum setback from the trace should be 50 feet, unless the site-specific fault investigation can demonstrate satisfactory safety conditions closer to the trace.

B. Additional seismic-resistant earthwork and construction design criteria shall be incorporated in the project as necessary, based on the site-specific recommendations of a California Certified Engineering Geologist in cooperation with
California-registered geotechnical and structural engineering professionals (see also Mitigation Measure 3.2.1-2 below).

Impact 3.2.1-2

The Plan Area will be subject to potentially damaging seismically induced ground shaking during the useful economic life of the Area Plan. (PS)

From the review of regional and local geo-seismic conditions, it is apparent that Southwest Santa Rosa will be subjected to at least one major earthquake during the useful economic life of the Area Plan. The design earthquake for the Plan Area is estimated to be an M7.0 earthquake on the Rodgers Creek fault, creating peak horizontal ground accelerations as high as 0.5g. The resulting vibration could cause damage to structural members of proposed commercial and residential facilities (primary effects), and could cause ground failures in alluvium and poorly compacted fill (secondary effects).

As previously discussed, the entire Plan Area is underlain by alluvial materials that, in their natural state, could respond poorly to seismic loading. It is possible to reduce the risks associated with seismically induced ground shaking by taking the location and type of subsurface materials into consideration when designing building foundations for a particular project site.

In the City of Santa Rosa, buildings constructed for human occupancy are required to reduce the exposure to potentially damaging seismic vibrations through seismic-resistant design, in conformance with the CUBC Seismic Zone 4 requirements. The CUBC Seismic Zones (1 through 4) roughly correspond to peak horizontal accelerations from the maximum credible earthquake expected within a given area (10 percent through 40 percent of the force of gravity). Because the parameters of CUBC Seismic Zone 4 will be exceeded by the design earthquake for the Plan Area, it is necessary to review the seismic protection requirements for all new or modified structures associated with the construction projects in more detail.

The geologic conditions at the construction sites, the criteria for determining the design earthquake for the specific project site, and the seismic-restraint criteria for areas in which new structures will be located need to be reviewed by a California Registered Geologist or Certified Engineering Geologist in consultation with the geotechnical and structural engineers for the project. The review would produce recommendations regarding seismic restraints that would be incorporated in the design.
of projects within the Plan Area to increase the chances of survival for residents and visitors to the Plan Area during a major earthquake.

Mitigation Measure 3.2.1-2

Incorporate seismic-restraint criteria in the design of slopes, foundations and structures for projects within the Plan Area. Implementation of this mitigation measure, as outlined below, would reduce this impact to an insignificant level. (I)

A. The minimum seismic-resistant design standards for all proposed facilities shall conform to the CUBC Seismic Zone 4 Standards.

B. Additional seismic-resistant earthwork and construction design criteria shall be incorporated as necessary, based on the site-specific recommendations of California-registered geotechnical and structural engineering professionals recommended to be in cooperation with a California Certified Engineering Geologist.

C. During site preparation, the registered geotechnical professional shall be on the site to supervise implementation of the recommended criteria.

D. The California registered Geotechnical Engineer consultant shall prepare an "as built" map/report, to be filed with the City, showing details of the site geology, the location and type of seismic-restraint facilities, and documenting the following requirements, as appropriate.

1. Engineering analyses shall demonstrate satisfactory performance of alluvium and fill where they form part or all of the support for structures.

2. Analysis of soil expansion potential and appropriate remediation (compaction, removal, etc.) shall be completed prior to using expansive soils for foundation support.

3. Roads, foundations and underground utilities in fill or alluvium shall be designed to accommodate settlement or compaction estimated by the site-specific investigations of the geotechnical consultant.

Impact 3.2.1-3

Grading, excavation and construction activities have the potential to increase erosion of soil from the sites and subsequent deposition of particles in drainage ways, creeks, or wetlands. (PS)

During the grading and construction period, the potentially erosive effects of water leaving the construction areas would be of concern. Runoff during the grading period could carry particles of fill from the grading or construction sites, or could erode soil down gradient, if the flow were not
controlled. In some cases the loss of the material by erosion may not be a significant impact in itself, however, the re-deposition of eroded material in water bodies in or adjacent to the Plan Area could create turbidity (endangering aquatic life), reduce wildlife habitat, and reduce the water-carrying capacity of streams and drainage ways, thereby potentially aggravating flood conditions (see Section 3.2.2, Hydrology). Erosive conditions created during the grading period can persist into the operations period.

The single most effective method to counteract the potential for water erosion, is to complete as much of the grading and construction as possible during the dry season. However, if portions of these phases extend into the wet season, sediment can be prevented from leaving the construction sites through the use of silt fences, straw bales, perimeter ditches, water bars, temporary culverts and swales, sediment traps, minimal grading concepts, and/or similar techniques appropriate for the site. These erosion and sediment transport control structures need to be in place prior to the onset of seasonal rains.

General grading activities, including those related to construction, are regulated by Chapter 79 of the CUBC. Because the Plan Area slopes at a very gentle and consistent gradient and contains fairly similar soil materials, a plan to control erosion and sediment transport can be outlined that generally would suit most sites (see below). The specific design of the erosion and sediment transport control plan would be based on the actual conditions at the sites where the grading and construction was to occur. The concepts to be incorporated (as appropriate) in the Plan have been published by the Association of Bay Area Governments and are reproduced in Mitigation Measure 3.2.1-3 below.26

Mitigation Measure 3.2.1-3

If grading or construction are to occur during the wet season, require an erosion and sediment transport control plan, designed by an erosion control professional, or landscape architect or civil engineer specializing in erosion control, that would meet the following objectives for the grading and construction period of projects proposed for the Southwest Plan Area. The implementation of this mitigation measure, as outlined below, would reduce this impact to an insignificant level. (I)

A. The erosion and sediment transport control plan shall be submitted, reviewed, implemented and inspected as part of the approval process for the grading plans for each project.
B. The plan shall be designed by the developers' erosion control consultant, using concepts similar to those developed by the Association of Bay Area Governments, as appropriate, based on the specific erosion and sediment transport control needs of each area in which grading and construction is to occur. Those concepts include some which apply generally to the Southwest Plan Area (see bullet items on list below), and some that would be appropriate only for specific sites. The possible methods are not necessarily limited to the following items.

- Confine grading and activities related to grading (demolition, construction, preparation and use of equipment and material storage areas (staging areas), preparation of access roads,) to the dry season, whenever possible.

- If grading or activities related to grading need to be scheduled for the wet season, ensure that structural erosion and sediment transport control measures are ready for implementation prior to the onset of the first major storm of the season.

- Locate staging areas outside major streams and drainage ways.

  Keep the lengths and gradients of constructed slopes (cut or fill) as low as possible.

  Discharge grading and construction runoff into small drainages at frequent intervals to avoid buildup of large potentially erosive flows.

  Prevent runoff from flowing over unprotected slopes.

- Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction.

- Keep runoff away from disturbed areas during grading and related activities.

  Stabilize disturbed areas as quickly as possible, either by vegetative or mechanical methods.

- Direct runoff over vegetated areas prior to discharge into public storm drainage systems, whenever possible.

- Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or siltation fences.

- Make the contractor responsible for the removal and disposal of all sedimentation in off-site retention ponds, that is generated by grading and related activities of the project.

  Use landscaping and grading methods that lower the potential for downstream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower storm-water conveyance velocities are examples of effective methods.
3.2.1 Soils, Geology and Seismicity

- Control landscaping activities carefully with regard to the application of fertilizers, herbicides, pesticides or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team.

C. During the installation of the erosion and sediment transport control structures, the erosion control professional shall be on the site to supervise the implementation of the designs, and the maintenance of the facilities throughout the demolition, grading and construction period.

D. The erosion control professional shall prepare an "as built" erosion and sediment control facility map, to be filed with the City, showing details of the structural elements of the plan and providing an operating and maintenance schedule throughout the operational period of the project.

Impact 3.2.1-4

Use of expansive or weak soils for foundation support without prior treatment could create unstable soil conditions at the construction site. (PS).

The existence of expansive, compressible and corrosive soils throughout the Plan Area make it necessary to ensure the soils used for foundation support are sound. The creation of building pads in unsuitable soils has the potential to create future problems of foundation settlement and utility line disruption if the soils are not specifically engineered for stability.

An acceptable degree of soil stability can be achieved by adopting soil treatment programs (grouting, compaction, drainage control, etc.) and foundation designs (drilled piers, driven piles, etc.) that address site-specific soil conditions. Site-specific analysis is the basis of foundation design in areas where unsuitable conditions are suspected. Such analyses contain recommendations for ground preparation, earthwork, foundations, etc., specific to the site, that become an integral part of the construction design.

Before approving the design of projects proposed within the Southwest Plan Area, the City should have a completed report of soil conditions at the project site, provided by the Project Sponsor, that identifies and evaluates potentially unsuitable soil conditions. The evaluations must be conducted by registered soil professionals, and measures to reduce or eliminate inappropriate soil conditions must be applied to the project site. The site-specific measures needed to achieve satisfactory soil performance cannot be determined until the soil evaluations are complete and at least conceptual
designs for the project have been prepared. At a minimum, the investigations must provide information and recommendations for the following items:

1. The characteristics of the soil materials at the site.
2. The most appropriate type of treatment to correct inadequacies in the support soils.
3. The most appropriate type of foundations for the proposed structures.
4. The design criteria for the recommended foundation type.
5. The estimated ground settlement rate beneath the foundation.
6. The necessary subgrade preparation for the foundations.
7. The lateral pressures for retaining walls.
8. The drainage conditions at the site.
9. The suitability of on-site soils for use as backfill.

The recommendations of the foundation reports prepared for the construction of buildings at the specific project site are required to be incorporated in the Plans and Specifications for the design of the project.

**Mitigation Measure 3.2.1-4**

Require site-specific soil suitability analysis and stabilization procedures, and design criteria for foundations, as recommended by a California-registered soil engineer during the design phase for each site where the existence of unsuitable soil conditions is known or suspected. Implementation of this mitigation measure, as outlined below would reduce this impact to an insignificant level. (I)

A. During the design phase for each site where the existence of unsuitable soil conditions is known or suspected, the developer's registered soil engineering consultant shall provide documentation to the City that:

1. site-specific soil suitability analyses has been conducted in the area of the proposed foundation to establish the design criteria for appropriate foundation type and support, and

2. the recommended criteria have been incorporated in the design of foundation.
B. During grading for these sites, the registered soils professional shall be on the site:

1. to observe areas of potential soil unsuitability,
2. to supervise the implementation of soil remediation programs, and
3. to verify final soil conditions prior to setting the foundations.

C. The registered soils engineering consultant shall prepare an "as built" map, to be filed with the City, showing details of the site soils, the location of foundations, sub-drains and clean-outs, the results of suitability analyses and compaction tests.

Impact 3.2.1-5

The Area Plan would convert approximately 848 acres of Locally Important Farmland to non-agricultural use. (S)

For discussion of this issue the reader is referred to Section 3.1.2, Land Use.

Mitigation Measure 3.2.1-5

None available.

Impact 3.2.1-6

The Bellevue Avenue interchange may be subject to the damaging effects of surface rupture where it crosses a possible splinter trace of the Rodgers Creek fault. (PS)

Damage caused by surface rupturing is limited to the actual location of the fault-line break, although it would be accompanied by damage from groundshaking which would affect areas adjacent to the fault rupture. Rupture of the fault cannot be avoided, if the interchange crosses an active fault trace, but the effects on the interchange can be reduced through seismic-resistant design.

Mitigation Measure 3.2.1-6

Require site-specific fault trace location and activity level investigations, conducted by a California Certified Engineering Geologist, Registered Geologist or Geotechnical Engineer, to determine if the interchange crosses an active fault trace.
If it is determined that the interchange crosses an active fault trace (there is no possibility for a setback), require site-specific seismic-resistant features and techniques to be incorporated in the design and construction of the interchange and its supporting structures. Implementation of this mitigation measure, as outlined below, would reduce the intensity of this impact, but would leave the residual impact at a significant level. (S)

A. Design and construct the interchange to cross the fault trace, as nearly as possible to a right angle.

B. Seismic-resistant earthwork and construction design criteria should be incorporated in the interchange foundations, aerial structures, etc., based on the site-specific recommendations of California-registered geotechnical and structural engineering professionals, recommended to be in cooperation with a California Certified Engineering Geologist.

C. During site preparation, the registered geotechnical professional shall be on the site to supervise implementation of the recommended criteria.

D. The geotechnical consultant shall prepare an "as built" map/report, to be filed with the City, showing details of the site geology, the location the fault trace, and the type and location of seismic-restraints used for the project.

PROPOSED PROJECTS

SETTING

The regional geology, regional seismicity, and applicable policies are as described previously for the Area Plan.

Project #1: Dutton Place

Topography. Project #1 is at approximately elevation +135 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Zamora silty clay loam soils (Capability Class I), which have moderately slow percolation rates, moderate to high expansion potential, low erosion potential, fair to poor strength, very low liquefaction potential, and are moderately to highly corrosive.

Geologic Units. The site is underlain by older alluvial fan deposits. Conventional excavation equipment would be adequate to accomplish the minimal amount of grading expected, but erosion control would be needed if excavation and landforming took place during the rainy season. Additionally, some caving would be expected in fine sandy material or loose gravelly material.
Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 2 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site. Because the site is underlain by unconsolidated deposits, groundshaking intensity may be higher than expected for sites underlain by bedrock. Site-specific geotechnical design would be needed to establish correct seismic-resistance criteria for the site. Landslides are not a hazard, but the stability of the walls of utility trenches in the unconsolidated deposits would need to be monitored during the excavation and construction period. Erosion control would also be needed during construction in the wet season. Expansive and weak soils at the site would not be suitable for foundation support in their natural condition. Recompaction or removal and replacement would be necessary to meet City and State regulation standards.

Project #2: Westmeadow Park

Topography. Project #2 is at approximately elevation +120 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Wright loam (wet phase) soils (Capability Class III), which have moderate to very slow percolation rates, low to high expansion potential, low to moderate erosion potential, fair to poor strength, very low to low liquefaction potential, and are highly corrosive.

Geologic Units. The site is underlain by older alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.

Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 3 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1, except that erosion and sediment transport concerns would be more serious because of the creek.

About 1.7 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.
Project #3: Western Gardens

Topography. Project #3 is at approximately elevation +120 feet msl. The land slopes south at less than a 1 percent gradient.

Soils. The site is covered by Zamora silty clay loam soils (Capability Class I), which have moderately slow percolation rates, moderate to high expansion potential, low erosion potential, fair to poor strength, low liquefaction potential, and are moderately to highly corrosive.

Geologic Units. The site is underlain by fluvial and younger alluvial deposits. Excavation conditions would be similar to those described for Project #1.

Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 3 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.

Project #4: Fouche Village

Project #4 is at approximately elevation +135 feet msl. The land slopes southwest at less than a 1 percent gradient. In other geologic, soils and seismic respects conditions are similar to those described for Project #1.

Project #5: Southcreek Village

Topography. Project #5 is at approximately elevation +125 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Yolo clay loam soils (Capability Class I), which have moderate percolation rates, low to moderate expansion potential, low erosion potential, fair to poor strength, low to moderate liquefaction potential, and are slightly corrosive.

Geologic Units. The site is underlain by younger alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.
Faults. The closest known active fault is the Rodgers Creek fault, about 3.5 miles to the east. However, a possible splinter trace of the Rodgers Creek fault may cross the site.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes would be similar to that described for Project #1. Additionally, the possibility of an active fault trace crossing the site raises concerns regarding fault rupture hazards. On-site geotechnical investigation will be necessary to resolve this issue.

About 10.8 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #6: Baker Subdivision

Topography. Project #6 is at approximately elevation +110 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Clear Lake clay (ponded phase) soils (Capability Class III), which have slow percolation rates, high expansion potential, very low erosion potential, poor strength, low to moderate liquefaction potential, and are highly corrosive.

Geologic Units. The site is underlain by younger alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.

Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 3.5 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.

About 5.8 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.
Project #7: Burbank Avenue Condominiums

Topography. Project #7 is at approximately elevation +122 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Clear Lake clay and Wright loam (wet phase) soils (Capability Classes II and III). Clear Lake clay conditions are similar to those described for Project #6; Wright loam conditions for Project #2.

Geologic Units. The site is underlain by younger and older alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.

Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 3.5 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.

About 1.3 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #8: Ash Drive

Topography. Project #8 is at approximately elevation +95 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Wright loam (wet phase) and Clear Lake clay (ponded phase) soils (Capability Class III), which have soil characteristics similar to those described for Projects #2 and #6.

Geologic Units. The site is underlain by younger and older alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.
Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 4 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.

Project #9: Courtside Village

Topography. Project #9 is at approximately elevation +97 feet msl. The land slopes west at less than a 1 percent gradient.

Soils. The site is covered by Zamora silty clay loam and Alluvial Land soils (Capability Classes I and II). Zamora soils are as described for Project #1. Alluvial Land soils are highly variable in their characteristics and must be tested at each site for design purposes.

Geologic Units. The site is underlain by younger and older alluvial fan deposits. Excavation conditions would be similar to those described for Project #1.

Faults. No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 4 miles to the east.

Geo-Seismic Hazards and Constraints. Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.

About 31.3 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #10: Martin Homeless Housing

Project #10 is at approximately elevation +96 feet msl. The land slopes west at less than a 1 percent gradient. Other conditions are similar to those described for Project #9 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints). There is no Locally Important Farmland on this site.
Project #11: Northpoint Village

Project #11 is at approximately elevation +105 feet msl. The land slopes west at less than a 1 percent gradient. Other conditions are similar to those described for Project #7 (see Projects #2 and #6 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints). About 61.2 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #12: Solarium 2010

Topography. Project #12 is at approximately elevation +110 feet msl. The land slopes west at less than a 1 percent gradient.

Soils. The site is covered by Alluvial Land soils (Capability Class II), similar to those described for Project #9.

Geologic Units. The site is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #9 (see Project #1 for description of Geo-Seismic Hazards and Constraints). There is no Locally Important Farmland on the site.

Project #13: Mountain View Homes

Topography. Project #13 is at approximately elevation +105 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Clear Lake clay soils (Capability Class III), similar to those described for Project #6.

Geologic Units. The site is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Geo-Seismic Hazards and Constraints).

About 0.3 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.
Project #14: Lands of Kersch

Topography. Project #14 is at approximately elevation +102 feet msl. The land slopes southwest at less than a 1 percent gradient.

Soils. The site is covered by Wright loam soils (Capability Class III), similar to those described for Project #2.

Geologic Units. The site is underlain by older alluvial deposits. Other conditions would be similar to those described for Project #1.

About 2.0 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #15: Griffen Estates

Project #15 is at approximately elevation +112 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Clear Lake clay soils (see Project #6), and is underlain by younger alluvial deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Geologic Units, and Geo-Seismic Hazards and Constraints). There is no Locally Important Farmland on the site.

Project #16: Lands of Wismer

Project #16 is at approximately elevation +102 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Clear Lake and Wright soils (see Projects #6 and 2), and is underlain by younger and older alluvial fan deposits. Other conditions would be similar to those described for Project #7 (see Project #1 for description of Geologic Units, and Geo-Seismic Hazards and Constraints).
About 13.9 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #17: Pero Apartments

Project #17 is virtually identical to the site of Project #15 (see Project #6 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints).

Project #18: Burbank Housing

Project #18 is at approximately elevation +112 feet msl. The land slopes southwest at less than a 1 percent gradient. Other conditions would be similar to those described for Project #14 (see Project #2 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints).

About 2.6 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #19: Skidmore Acres

Project #19 is virtually identical to the site described for Project #14 (see Project #2 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints), except there is no Locally Important Farmland on the site.

Project #20: South Dutton

Project #20 is at approximately elevation +110 feet msl. The land slopes southwest at less than a 1 percent gradient. Other conditions would be similar to those described for Project #14 (see Project #2 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints).

About 10.0 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.
Project #21: Orchard Park

Project #21 is at approximately elevation +108 feet msl. The land slopes south at less than a 1 percent gradient. Other conditions would be similar to those described for Project #14 (see Project #2 for description of Soils; Project #1 for Geologic Units, and Geo-Seismic Hazards and Constraints).

About 1.7 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #22: Springfield

Project #22 is at approximately elevation +95 feet msl. The land slopes south at less than a 1 percent gradient.

The site is covered by Wright soils (see Project #2), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #1 (see Project #1 for description of Geo-Seismic Hazards and Constraints).

About 58.7 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #23: Young's Dutton Place

Project #23 is virtually identical to Project #6 (see Project #1 for description of Geologic Units, and Geo-Seismic Hazards and Constraints). About 2.6 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #24: Lara Subdivision

Project #24 is at approximately elevation +124 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Zamora and Yolo soils (see Projects #1 and 5), and is underlain by older alluvial fan deposits. Other conditions would be similar to those described for Project #5, including
the possibility that the site is crossed by a splinter trace of the Rodgers Creek fault (see Project #1 for description of Geologic Units, and Geo-Seismic Hazards and Constraints).

About 2.6 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #25: Patrick Brennan Acres

Project #25 is at approximately elevation +118 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Clear Lake and Wright soils (see Projects #6 and 2), and is underlain by younger and older alluvial fan deposits. Other conditions would be similar to those described for Project #1.

About 1.0 acre of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #26: California Stony Point

Project #26 is at approximately elevation +105 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Wright soils (see Project #2), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Geo-Seismic Hazards and Constraints).

About 13.1 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #27: Lands of Pierre

Project #27 is at approximately elevation +112 feet msl. The land slopes southwest at less than a 1 percent gradient.
The site is covered by Clear Lake and Wright soils (see Projects #6 and 2), and is underlain by younger and older alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Geo-Seismic Hazards and Constraints).

About 17.3 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #28: Village Station

Project #28 is at approximately elevation +100 feet msl. The land slopes west at less than a 1 percent gradient.

The site is covered by Alluvial Land soils (see Project #9), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #9 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

About 3.9 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #29A: Bellevue Ranch

Project #29A is at approximately elevation +110 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Zamora and Clear Lake soils (see Projects #1 and 6), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

About 80.1 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

Project #29B: Bellevue Ranch

Project #29B is virtually identical to Project #6 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints). About 5.9 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.
Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

**Project #29C: Bellevue Ranch**

Project #29C is at approximately elevation +120 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Zamora and Clear Lake soils (see Projects #1 and 6), and is underlain by fluvial and younger alluvial fan deposits. Other conditions would be similar to those described for Project #5, including the possibility that the site is crossed by a splinter trace of the Rodgers Creek fault (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

About 28.7 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

**Project #30: Air Center**

**Topography.** Project #30 ranges from approximately elevation +90 to +102 feet msl. The land slopes west and southwest at less than a 1 percent gradient.

**Soils.** The site is covered by Wright and Clear Lake soils (Capability Class III), similar to those described for Projects #2 and 6.

**Geologic Units.** The site is underlain by younger and older alluvial fan deposits. Other conditions would be similar to those described for Project #1.

**Faults.** No known faults cross or trend toward the project site, therefore fault rupture hazard is considered low. The closest known active fault is the Rodgers Creek fault, about 5 miles to the east.

**Geo-Seismic Hazards and Constraints.** Groundshaking from local or regional earthquakes is the major seismic hazard to the site, and conditions would be similar to those described for Project #1.
About 23.4 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

**Project #31: Ken Martin Property**

Project #31 is at approximately elevation +104 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Wright soils (see Project #2), and is underlain by younger and older alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

About 7.4 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

**Project #32: California Stony Point**

Project #32 is at approximately elevation +105 feet msl. The land slopes southwest at less than a 1 percent gradient.

About one-half of the site is covered by Clear Lake soils (see Project #6) and the other half by Wright soils (see Project #2). The site is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Geo-Seismic Hazards and Constraints).

About 5.0 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

**Project #34: Southwest Fire Station**

Project #34 is at approximately elevation +105 feet msl. The land slopes southwest at less than a 1 percent gradient.
The site is covered by Clear Lake soils (see Project #6), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

There is no Locally Important Farmland at the site.

Project #35: Bellevue Elementary School

Project #35 is at approximately elevation +115 feet msl. The land slopes southwest at less than a 1 percent gradient.

The site is covered by Zamora soils (see Project #1), and is underlain by younger alluvial fan deposits. Other conditions would be similar to those described for Project #6 (see Project #1 for description of Soils, Geologic Units, and Geo-Seismic Hazards and Constraints).

About 7.8 acres of the site are classified as Locally Important Farmland (Figure 3.1.2-1, Section 3.1.2, Land Use), and would be converted to non-agricultural use.

IMPACTS AND MITIGATION MEASURES

Methodology and Standards of Significance

The examination of geology, soils and seismicity issues in this section of the Environmental Impact Report is based on information obtained from sources similar to those described for the examination of the Area Plan (see above). The potential effects of the proposed development projects are considered from the same two points of view as the Area Plan: (1) the effects of the projects on the environment and (2) the effects of the environment on the projects. The two criteria for significance of impact are as described for the examination of the Area Plan.27

As previously mentioned, individual site investigations will be needed to establish parameters for various aspects of site design. The results of these investigations, to be detailed in the mitigation measures, will be incorporated into the site design to reduce, eliminate or avoid the geologic, soils or seismic condition that represents a hazard at the site. None of the following geotechnical impact issues necessitates amendments to the City’s hazard reduction policies for the Plan Area, and none
is unique to the Southwest Plan Area: these issues have been successfully addressed in other parts of Santa Rosa through the implementation of planning policies and regulations.

Project #1 through Project #35

Impact 3.2.1-7

**Groundshaking, erosion, unsuitable foundation conditions, and seismic risk to population are as described for the Southwest Area Plan.** (PS)

The geotechnical impacts of the proposed development projects are essentially those of the Area Plan. The level of concern varies somewhat among the projects sites because of differences in soils or underlying geologic material. However, as can be seen from the site descriptions in the Setting section of this section, those differences are easily identified.

For example, groundshaking hazards vary to some extent with the type and depth of unconsolidated material on which each project is located and with the site's proximity to the epicenter of the earthquake causing the vibration. CUBC Seismic Zone 4 standards are the minimum requirement for all sites in the Plan Area. However, because of the high accelerations expected from the Rodgers Creek fault, in some cases in excess of the CUBC Seismic Zone 4 standards, each development needs to be designed using site-specific seismic-resistance criteria that would reduce the effects of groundshaking beyond those addressed in CUBC.

Erosion and grading impacts are expected to be moderate at Projects #9, 10, 12 and 28. They will be low to very low at other sites. Site-specific erosion and grading control is addressed in CUBC Chapters 29 and 70. Following those criteria and those of the Association of Bay Area Governments Erosion and Sedimentation Control Measures (as outlined in the Area Plan portion of this chapter of the EIR) would eliminate problems related to these issues.

Liquefaction potential is lowest at Projects #1, 4, 8, 14, 18, 19, 20, 21, 22, 24 and 33 where coarse older alluvium underlies each site. Projects #3 and 29C have clayey sub-soils that also have a low liquefaction potential. Projects #5, 6, 7, 13, 15, 23, 25, 26, 27, 29A, 29B, most of 30, 31, 32, 34 and 35 have fine-grained sub-soils containing little or no clay matrix and thus have a higher potential for liquefaction. Projects #9, 10, 12 and 28 are on relatively recent alluvium and have an unknown liquefaction potential. Because the effects of liquefaction can be disastrous, it is necessary that each
site be subject to geotechnical investigation to establish design criteria that account for any liquefiable soils discovered.

Highly expansive soils occur on all sites, except #28, where expansion potential is moderate. Although this condition is common in Santa Rosa and relatively easily treated, each site would need to be inspected to establish the most appropriate procedure (such as grouting, recompaction, replacement, etc.) to eliminate the effects of expansive soils. Identification of such soils would follow similar procedures at each site, but, because some soils are more expansive than others, remediation will differ dependant on the extent and severity of expansion potential.

No landslide or mineral resource impacts occur at any site.

Mitigation Measure 3.2.1-7

Implementation of Mitigation Measures 3.2.1-2, -3, -4, and -5 would reduce groundshaking, erosion, unsuitable foundation conditions, and seismic risk to population impacts to insignificant levels. (I)

Projects #5, 24 and 29C

Impact 3.2.1-8

Three sites may be subject to the damaging effects of surface rupture along a possible splinter trace of the Rodgers Creek fault during the useful economic life of the projects. (PS)

The question of the occurrence of a splinter trace of the Rodgers Creek fault needs to be resolved at Southcreck Village (Project #5), Lara Subdivision (#24) and Bellevue Ranch (#29C). The effects discussed for the Area Plan are equivalent to the effects expected on the sites these projects. If an active trace exists, the requirements of the Alquist-Priolo Special Studies Zones Act of 1972 would be invoked to establish setbacks and design parameters.

Mitigation Measure 3.2.1-8

Implementation of Mitigation Measure 3.2.1-1 would reduce the impacts of fault rupture to insignificant levels. (I)
Implementation of the previously discussed mitigation measures are expected to have two beneficial effects. First, they will ensure that foundations and structures will perform adequately under static and dynamic conditions in response to the potential geo-seismic hazards posed by earthquakes, erosion and unsuitable foundation conditions, thereby increasing public safety. Second, they will provide a procedure for City agencies to track and document the process of geo-seismic hazard remediation, thereby providing the agencies and the public affirmation that the new facilities will perform adequately in response to potential geo-seismic hazards.

The strengthening of foundations and structures is expected to consume more natural resources (in the form of fill, rock, concrete, steel) than facilities which are not designed to accommodate the geo-seismic conditions at the project sites. This consumption is not considered adverse because (1) the resources would be used to meet the life-safety goals of the City in protecting the residents and users of the project area from geo-seismic hazards; (2) no unique physical or geologic features would be disturbed to obtain the needed resources; (3) the construction areas would be protected by erosion and sediment transport controls to prevent material loss and downstream habitat degradation.

Implementation of the mitigation measures is not considered a significant adverse impact on the geologic, soils or seismic environment for the reasons stated above. The value of meeting City life-safety goals is considered to out-weigh the slight increase in material- and land-use.

1. GLOSSARY:

**Horizontal Ground Acceleration**

The speed at which soil or rock materials are displaced by seismic waves. It is measured as a percentage of the acceleration of gravity (0.6g = 60 percent of 32 feet per second squared, expressed as an horizontal force). Peak horizontal ground acceleration is the maximum acceleration expected from the maximum credible earthquake predicted to affect a given area. *Repeatable* acceleration refers to the that resulting from multiple seismic shocks. *Sustained* acceleration refers to the acceleration produced by continuous seismic shaking from a single, long-duration event.

**Modified Mercalli Intensity (MMI) Scale**

A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. Effects range from those which are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. Intensity VII frightens most people, and Intensity VIII causes alarm approaching panic. The scale was developed in 1902 by Giuseppe Mercalli for European conditions, and was adapted in 1931 for conditions in North America, where it is known as the "Modified Mercalli Intensity Scale." It is commonly used to estimate the effects of earthquakes that occurred prior to the development of the Richter scale.
Maximum Credible Earthquake (MCE)

The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework.

Richter Scale

A logarithmic scale developed in 1935/36 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude (M) by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials. Each whole number on the Richter scale represents a 10-fold increase in amplitude of the waves on a seismogram and about a 31-fold increase in energy release.

Prime Farmland

Lands with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. The land must be cropped and be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

Farmland of Statewide Importance

Lands similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. These lands have the same reliable source of adequate quality irrigation water available during the growing season. Land must have been used for production of irrigated crops at some time during the two update cycles prior to the mapping date.

Farmland of Local Importance

Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

Urban and Built-up (Developed) Land

Lands occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a ten-acre parcel.

Other Land

Lands which do not meet the criteria of any other category.


16. This information is summarized from previously published regional reports that include the Southeast Santa Rosa Plan Area, and supplemented by geotechnical investigations within the Plan Area. Major sources include the following documents.


b) Wagner and Bortugno, 1983, op. cit.


23. Wagner, and Bortugno, 1982, Sheet 5, scale 1:250 000.


3.2.2 HYDROLOGY AND WATER QUALITY

SOUTHWEST AREA PLAN

SETTING

Surface Water

Drainage. The Southwest Area Plan Area occupies a large broad area gently sloping toward the southwest at less than a one percent gradient. Elevations are near 150 feet above mean sea level (+150 feet msl) in the northeast corner of the Plan Area, and drop to about +90 msl in the southwest corner. Existing development includes farms, orchards, residential and commercial/industrial areas. The largest single development is the Air Center, covering nearly 10 percent of the Plan Area. About 30 percent of the Plan Area is covered by impervious surfaces, such as roadways, parking lots and buildings. The largest concentrations of impervious surfaces are in the commercial/industrial areas along Corporate Center Parkway and Northpoint Parkway, in the suburban developments in the northeast quarter of the Plan Area and more than 100 acres of concrete runways and roads at the Air Center (Project #30). Drainage occurs in a generally southwest direction. The Plan Area can be divided into 3 main drainages: Roseland, Colgan and Naval Creeks. The northwest corner of the area contains a small portion of the Santa Rosa Creek Watershed. The Plan Area is tributary to Laguna de Santa Rosa; a stream that contains the major drainages of the southeastern portion of the watershed of the Russian River, which covers a total area of approximately 1,485 square-miles.

Roseland Creek's watershed extends from Highway 12 and Highway 101 in the northeast to Llano Road in the southwest. The creek is an intermittent stream that flows southwest across the Plan Area in a more or less natural channel for about 2 miles. Near Hearn Avenue, southeast of the Air Center, the stream enters the Roseland Creek Flood Control Channel. This channel was designed and built by the Sonoma County Water Agency in the early 1970s, based on buildout to General Plan land uses in effect at that time. The flood control channel can contain a 25-year storm with no overflows. The 100-year storm causes overflow into the Naval Creek watershed (see below). Roseland Creek Flood Control Channel continues south, leaving the Plan Area through a box culvert under Ludwig Avenue east of South Wright Road, and eventually flowing into Laguna de Santa Rosa about 2.5 miles to the southwest.
Colgan Creek is an intermittent stream that flows west across the Southeast Plan Area in a natural state for one mile. The stream crosses under Petaluma Hills Road in a culvert and continues in a constructed reinforced concrete box channel (12 feet by 7 feet) until it reaches the Colgan Creek Flood Control Channel, a 20 feet by 8 feet reinforced concrete box culvert approximately 0.5 miles northwest of the site. This concrete channel continues westward for a further 2.5 miles and then reverts to a natural state for another 2.5 miles to the Laguna de Santa Rosa.

Naval Creek is also an intermittent stream that flows west across the Air Center in a modified channel. It accepts overflow from Roseland Creek, passes under the north-south runway in a triple box culvert, and continues west to flow under South Wright Road in a box culvert.

The Laguna de Santa Rosa drains an area of 254 square miles and is actually a long chain of marshes and wetlands interconnected by a series of poorly-defined natural and modified channels with restricted flow capacity. These conditions have created a natural detention basin that slows the discharge of flood waters into the Russian River. The Laguna also provides overflow storage for flood waters that originate at the northern end of the Russian River watershed. Santa Rosa Creek runs between Highway 12 and Montgomery Drive into Downtown Santa Rosa, where it enters an underground culvert system at E Street. The stream resurfaces at Santa Rosa Avenue into a fully improved and stabilized channel section that carries it underneath Highway 101 and west across the Santa Rosa Plain to the Laguna de Santa Rosa.

The Santa Rosa area receives average rainfall ranging from 28 to 32 inches per year, with almost 80 percent of this total occurring between the months of December and March.\(^1\) Average annual runoff of this rainfall equals approximately 12 inches. Rainfall intensities range from 1.2 to 1.4 inches per hour, for a one hour duration, 100-year recurrence interval storm. The most recent major flooding event was in 1986, when heavy rains within the lower Russian River watershed generated "bank full" flow conditions in many of the region's streams and record flow rates downstream in the Russian River at Guerneville.\(^2\)

**Drainage and Flood Hazard.** The Sonoma County Water Agency is generally responsible for the maintenance of major streams and flood control facilities throughout the Plan Area. In many locations, though, no public rights-of-way or easements exist along stream channels, so maintenance
is the responsibility of private landowners. The Water Agency also reviews for hydraulic adequacy the drainage plans of land development proposals.

The Federal Emergency Management Agency maps indicate that this region of Santa Rosa is in Zone C, an area of minimal flooding (less than 1 foot)\(^3\). A comprehensive stormwater management program, the Central Sonoma Watershed Project, has been undertaken for the Santa Rosa region. This project has removed the flood hazard designation applied by the Federal Emergency Management Agency from all parts of the watershed. The program involved construction of stream channel modifications and upstream flood control detention basins.

Localized flooding and capacity issues were identified by the City of Santa Rosa to exist at two locations: at Colgan Channel between Corby Avenue and the Northwestern Pacific Railroad, and along the Roseland Channel where it passes through the Santa Rosa Air Center. The Colgan Channel at Corby Avenue, approximately 0.2 miles to the west of Santa Rosa Avenue, is an earth channel with lining only on curved sections. The channel has inadequate capacity for build-out of the 25-year design flow. An additional storm drain along Petaluma Road south of Yolanda Avenue would also be necessary to serve future development in the Southeast Plan Area and to prevent downstream flooding in the Southwest Plan Area south of Hearn Avenue.

The Roseland Channel watershed was modeled and analyzed in April 1993 to provide redesign solutions for the Sonoma County Water Agency (SCWA) channel in relation to the proposed build-out land uses of the Southwest Plan Area. The Master Environmental Assessment indicated potentially significant overflow about 300 feet south of the right-angle bend in the channel east of the Air Center. Roseland Channel, Naval Creek and the collector swales within the Air Center, Northpoint Village and Springfield Development were recognized as needing redesign to accommodate SCWA requirements. The proposed reconfiguration would include widening the reach of Roseland Channel to 25 feet, along the Fresno Avenue extension to accommodate the SCWA design flow for the 25-year storm with 1.5 feet of freeboard, and adding a parallel conduit system to reenter the Channel south of Ludwig Avenue. Further analysis would be needed to design a conduit system for the Naval Creek watershed.\(^4\)

**Surface Water Quality.** The water quality of the region is monitored by the Regional Water Quality Control Board, Santa Rosa Region. The Regional Board implements a Water Quality Control Plan
or basin plan, to control water quality in order to achieve the maximum benefit possible. Under the basin plan for the Santa Rosa region, present or beneficial uses listed for the reach of the Laguna de Santa Rosa include agricultural and industrial supply, recreation, freshwater habitat and wildlife habitat.\(^5\) Present and potential water quality problems identified by the North Coast Regional Water Control Board in the Basin Plan include: the disposal of municipal wastes and wastewater and underground tanks.

Surface water quality in the planning area is influenced by the three separate sources of water that contribute to the flow within local drainage channels: natural streamflow, stormwater and irrigation runoff, and direct discharges. Natural streamflow is limited, and depends on the slow drainage of groundwater through surface seeps and springs located throughout the hills that surround Santa Rosa. This water is generally free of contamination, although it often contains high concentrations of dissolved minerals and other naturally occurring solids. Stormwater and irrigation runoff enter streams directly as overland flow, carrying the dissolved or suspended residue of both natural and human land uses within each watershed. This can include silt and sand, organic fertilizers and pesticides, heavy metals, oil and grease, animal waste, decaying forest litter, and debris. Direct discharges into streams are generally made only by industrial plants and wastewater treatment facilities. Discharges are regulated locally by the North Coast Regional Water Quality Control Board (RWQCB), which grants permits for waste discharges and enforces the treatment provisions set forth in each permit.

The silt and sand carried by stormwater runoff are the products of continuing soil erosion within the watershed. As topography flattens, soil is deposited and slowly accumulates. The accumulated material gradually lowers the channel capacity and forces flood waters increasingly farther into the surrounding floodplain. According to the Sonoma County General Plan EIR, sedimentation is occurring more rapidly in the drainage facilities than originally anticipated. This may be at least partly a result of rapid urbanization within the Santa Rosa planning area. The resulting increase in stormwater runoff has caused longer duration, high velocity flows in the easily eroded natural stream channels. Upland erosion is also causing sedimentation in the Laguna de Santa Rosa, slowly lowering its capacity to mitigate downstream Russian River flooding.\(^6\)
Groundwater

Occurrence. The Plan Area is located within the Santa Rosa groundwater basin. The groundwater basin is extensively compartmentalized because of the discontinuous nature of most of the deposits, and because of folding and faulting, which disrupt groundwater flow. This compartmentalization, with both vertical and horizontal barriers, results in a variety of groundwater level conditions and a complicated pattern of groundwater quality. Division of the groundwater basin into semi-isolated units also implies that these units tend to remain localized, barring any substantial changes in pumpage patterns.7

The major water-yielding units in the Southwest Santa Rosa Plan areas are the alluvial fan deposits and the Merced formation sandstones. The Merced formation averages 500 feet in thickness, and is buried beneath the Plan Area by about 400 feet of alluvial deposits. It is one of the principal water-yielding formations in Sonoma County.

The alluvial fan deposits of unconsolidated, poorly sorted clay, silt, sand, and gravel cover most of the Santa Rosa plain, including most of the Southwest Plan Area. Their water-yielding capacity is variable in the moderate to high range, overlapping the range of the Merced formation. The alluvial fan deposits also provide recharge areas for surface water to percolate to the groundwater table (see below).8

A survey of wells was conducted by the California Department of Water Resources in the 1970s. This survey indicated the existence of thousands of wells in south and central Sonoma County. Wells in the area include wells for irrigation, domestic, industrial, and municipal supply. Pumpage for irrigation accounts for a larger quantity of groundwater than the other uses combined. The City of Santa Rosa occasionally augments it water supply from a local network of wells. Of the 14 wells operated, seven are inactive.9 The remaining wells are maintained in case of a need for emergency water supplies.10 Within its Master Plan, the City also identified potential target areas for development of new water supplies. These areas (Bennett Valley, Montgomery Village, and parallel to the U.S. 101 north of the U.S. 12) are outside of the Southwest Plan Area.

Recharge of groundwater occurs through percolation of rainfall and seepage from streams, primarily where land slopes are relatively gentle, and soils and geologic materials are permeable. Recharge is limited within much of the Santa Rosa Plain and the adjoining low hills by the relatively high clay
content of the basin soils, especially around the Air Center. These soils form a cap above the water table that slows the percolation of rainwater, causing prolonged ponding in low lying areas and often preventing the construction of septic tank leachfields. Within the Santa Rosa Plain, the most significant natural recharge areas are located along the channels of Santa Rosa, Mark West, Matanzas, Rincon, and Windsor Creeks, and Laguna de Santa Rosa. None of these important natural recharge zones are within the Southwest Santa Rosa Plan Area. A natural recharge area was identified in previous studies by the Department of Water Resources (DWR) in the northeastern third of the Southwest Plan Area.11 Recharge in this portion of the Plan Area is reduced by existing development (about 42% is covered with impervious surfaces), slow infiltration (high groundwater levels retard downward percolation) and limited soil permeability (high clay and fine silt content slows water passage) (Figure 3.2.2-1). Comparison of the soil map (Figure 3.3.1-2) with the geology map (Figure 3.3.1-4) for the Plan Area identifies the alluvial fan areas (Qof) as having potential recharge value but clay content in the soil is high, reducing the permeability rates.

From recharge areas, groundwater tends to flow toward streams or the troughs of the major valleys. Groundwater flows across the Plan Area in a southwesterly direction. Groundwater discharge occurs primarily through seepage to streams, marshes or through pumpage of wells.

Groundwater levels and depth to groundwater differ considerably across southern Santa Rosa, reflecting the variety of water-bearing formations and the compartmentalization of the major basins. In the Southwest Plan Area, shallow groundwater generally occurs at depths of 5 to 20 feet, with higher levels during the winter and early spring. The DWR study of the Santa Rosa Plain in 1982 identified a drop in water levels between 1960 and 1980 which occurred in southern Santa Rosa. A pumping depression had been identified in the Cotati and Sebastopol areas. There are no recent studies which document these water levels. Pumping by other cities within the Santa Rosa Plain for domestic supply has been reduced. Following the recent winter rains it would be anticipated that this decline may not be as great.12

**Groundwater Quality.** The Santa Rosa groundwater basin's primary recharge zone is the marshes and wetlands of the Laguna de Santa Rosa. As a result, the quality of stream flow within the Laguna’s tributaries directly affects groundwater quality. Groundwater quality in south-central Sonoma County is generally good to excellent, although the groundwater tends to be hard, with high calcium and magnesium concentrations. Hard water results in the build-up of deposits in water heaters and pipes.
and reduces the cleaning action of detergents. Soft waters are those with a hardness of less than 60 mg/l; moderately hard waters are those with a hardness range from 61 to 200 mg/l. Hard waters are those that have a hardness in excess of 200 mg/l.

Of the recent alluvial formations, excellent quality water is usually obtained from channel deposits, alluvium, and alluvial fan deposits. Wells in the alluvium yield from 100 to 900 gpm of generally good quality calcium-magnesium bicarbonate water, although a high boron content may occur. Groundwater from the Sonoma volcanics is usually a satisfactory quality sodium bicarbonate water with total hardness about 160 ppm. Maximum boron concentrations of 110 ppm have been reported and deep wells produce generally warmer water than that from other formations.\textsuperscript{13}

A number of areas in the Santa Rosa area have known groundwater contamination problems. For a discussion of hazardous materials and contamination issues refer to the Hazardous Materials section (Section 3.1.8).

**Applicable Plans, Policies, and Regulations.** Water resources are regulated by a variety of statutes at the local, state, and federal levels administered by a variety of jurisdictions. Agencies having jurisdiction over the proposed project with respect to water resources include: the City of Santa Rosa, Sonoma County Water Agency, State Water Resources Control Board and Regional Water Quality Control Board, and U.S. Environmental Protection Agency.

Most significant of the requirements to which the proposed project would be subjected to include the Clean Water Act, as enforced by the Army Corps of Engineers and the Environmental Protection Agency; Porter-Cologne Water Quality Control Act and related Code sections administered by the State Water Resources Control Board; and, permitting and licensing requirements which occur during development review by the local jurisdictions. The applicable plans, policies and regulations are outlined below.

**City of Santa Rosa General Plan.** Applicable policies of the City of Santa Rosa General Plan with which development would be required to comply include:
To preserve and restore the natural network of creeks and creek habitats [OSC-1].

To conserve water in agricultural, industrial, commercial and residential uses. To maintain high levels of water quality for human consumption and for other life systems in the region [OSC-6].

To control erosion and sedimentation to provide flood protection and protect water quality [OSC-7].

**Sonoma County Water Agency.** The Sonoma County Water Agency must approve plans for the proposed project's on-site drainage system, as well as for all new or upgraded facilities that may be required off-site. Culverts and drainage systems must be designed to accommodate the runoff from a 25-year recurrence interval storm event. In addition, all structures must be protected from flooding expected to occur during a 100-year recurrence interval storm.

**California Regional Water Quality Control Board/State Water Resources Control Board.** The California Regional Water Quality Control Board, North Coast Region has jurisdiction over the Russian River and its tributaries. The Regional Board is required by law to develop, adopt and implement a Water Quality Control Plan for the entire region. The principal elements of this plan are:

- Statement of beneficial water uses which the Board will protect;
- Water Quality objectives needed to protect the designated beneficial water uses; and
- Strategies and time schedules for achieving the water quality objectives.

These water quality objectives are to be achieved primarily through the establishment and enforcement of waste discharge requirements.

The State Water Resources Control Board (SWRCB) is also presently developing water quality objectives for priority pollutants. The objectives are contained in a document entitled "Development of Water Quality Control Plans for: Inland Surface Waters of California and Enclosed Bays and Estuaries of California" adopted 11 April 1991. Alternatives for developing statewide water quality objectives address three major areas of protection: (1) aquatic life; (2) human health; and (3) exposure to chlorinated dibenzodioxins and dibenzofurans. Among the other provisions pertaining to the above-stated objectives are (a) all point and non-point discharges (including urban runoff) must
3.2.2 Hydrology and Water Quality

comply with the identified water quality objectives; and (b) effluent limits are to be imposed, either through National Pollutant Discharge Elimination System (NPDES) permits or waste discharge requirements, such that the water quality objectives shall not be exceeded in the receiving water outside a designated mixing zone.

U.S. Environmental Protection Authority. The 1972 amendments to the Clean Water Act prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Industries that have direct stormwater discharges to navigable waters are required to obtain permits. It is within the existing authority of the Regional Water Quality Control Board to issue an NPDES permit for any stormwater outfall to the waters of the United States. According to the Basin Plan, after December 1991, the Regional Water Quality Control Board will require that an NPDES Permit be obtained for construction grading activities for all projects greater than five acres. This permit will require implementation of nonpoint source control of stormwater runoff through the application of a number of Best Management Practices (BMP). These practices are meant to reduce the amount of constituents entering streams and other water bodies.

A BMP Program, as required by the Regional Water Quality Control Board, describes stormwater management practices to control storm-runoff water quality. Practices include reporting of spills, implementing "good housekeeping" techniques to reduce contamination of surface water, preventive maintenance, inspection and record-keeping, security measures, and employee training. A Spill Prevention Control and Countermeasure Plan is included in the program. If construction is scheduled to occur throughout the year or is unlikely to be restricted to the dry months of the year, the BMPs must be implemented to ensure that sediment is confined to the construction area and not transported off-site. Erosion control is also required by the City, County, and the RWQCB through general plan policies and regulatory permits (NPDES permit in the case of the RWQCB).

IMPACTS AND MITIGATION MEASURES

Introduction

This section addresses the project-specific impacts of the proposed project on hydrological resources, including surface runoff, groundwater resources, and water quality. Construction of individual projects and build-out of the Plan Area would have direct impacts on water resources. Background
information was collected from topographical maps of the area and reports prepared by the Department of Water Resources, the U.S. Geological Survey, the Regional Water Quality Control Board, and the City of Santa Rosa. This information, in conjunction with a field survey, was used to determine the existing streamflow conditions, sediment rates, drainage inflows, and adjacent stream reach conditions. Impacts of the proposed project were then determined by assessing what changes would result in streamflow, sediment generation, drainage, groundwater conditions and potential water quality concerns during construction and following project completion.

Standards of Significance

Based upon Appendix G of the CEQA Guidelines, impacts are considered significant if one or more of the following conditions would result from implementation of the proposed project:

- Significant change in rate and amount of surface runoff or change in amount of water in any water body.
- Substantial degradation of water quality.
- Contamination or substantial reduction of a public water supply.
- Substantial degradation or depletion of groundwater resources.
- Substantial interference with groundwater recharge or direction and rate of groundwater flow.
- Location of facilities within a flood-prone area or alterations to the course or flow of floodwater.
- Substantial flooding, erosion or siltation.
- Alteration of stream flow characteristics which result in erosion, sedimentation or flooding downstream.

Evaluation of the significance of project-specific impacts in relation to this criteria is provided in the following discussion.

Impact 3.2.2-1

Development of the Southwest Santa Rosa Area Plan would result in higher surface runoff than currently leaves the area, potentially affecting the capacity handling ability of downstream conduits and creeks. (PS)
At present, about 30 percent of the Plan Area is developed and covered by impervious area, that is roadway, driveways, and building footprints. Build-out of the proposed Plan would replace much of the existing pasture areas with building area, but also would change some existing land uses containing high proportions of impervious surfaces (i.e. General Industry) to land uses with lower proportions of impervious surfaces (i.e. Low Density Residential). The change in impervious area can be estimated by making a broad assumption for site coverage for each particular land use and comparing the existing land uses with the proposed land uses. The following percentage of impervious areas are assumed:

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential - Low and Medium Low Density</td>
<td>30%</td>
</tr>
<tr>
<td>Residential - Medium and High Density</td>
<td>70%</td>
</tr>
<tr>
<td>Retail/Business Service/Office</td>
<td>90%</td>
</tr>
<tr>
<td>Public/Institutional</td>
<td>70%</td>
</tr>
<tr>
<td>General Industry</td>
<td>90%</td>
</tr>
<tr>
<td>Business Park</td>
<td>80%</td>
</tr>
<tr>
<td>Open Space</td>
<td>15%</td>
</tr>
<tr>
<td>Parks/Recreational</td>
<td>25%</td>
</tr>
</tbody>
</table>

Using these assumptions, approximately 49 percent of the Plan Area would be covered by impervious area. This is a conservative estimate given that landscaping and irrigated areas would be incorporated into individual building design.

This increase in impermeable surfaces (approximately 63 percent more than existing impervious surfaces) would increase the total amount of surface runoff which currently leaves the site. Approximate calculations of magnitude of the increase were estimated using the Rational formula as outlined in the Sonoma County Water Agency Flood Control Manual. For a storm event of 25-year recurrence interval, the peak of surface runoff of 1972 cfs would be associated with this increase in impervious area. This increase would be divided over the drainages which cross the site, but would most severely affect the Roseland, Naval and Colgan Creek watersheds.

This increase in runoff would have significant impacts at the locations previously identified, where drainage capacity problems exist. Both the Southeast and Southwest Area Infrastructure Plans recognize the need for improvements to existing creek channels.

It is assumed that each individual project proposed within the Southwest Area Plan would be subject to City requirements for provision of drainage, that is that storm drainage must be provided such that
the depth of storm flow is contained within a street curb of 6 inches. Individual projects would necessarily be required to connect to the existing storm drainage network.

Portions of Colgan Creek, Roseland Creek, and Naval Creek presently exist as natural channels. Urbanization of the watershed of these drainages and development immediately adjacent to the stream banks would result in disruption and need for channel improvements to adequately convey increased storm flows as addressed above. It was the intent within the City of Santa Rosa General Plan that the City work "to preserve and restore the natural network of creeks and creek habitats" within the City. Drainage improvements which may be necessary to provide adequate drainage must consider this requirement.

Provided these capacity problems are addressed and sufficient drainage infrastructure is in place following development with consideration of the need for natural channels, no significant drainage impacts would occur within the Plan Area. However, the increased volume of runoff could contribute to additional depth or area of flooding along Laguna de Santa Rosa, making it necessary to modify portions of the drainage channels downstream from the Plan Area.

Mitigation Measure 3.2.2-1 (I)

(a) The Colgan Creek channel west of U.S. 101 would be enlarged and modified if necessary for a length of 2,450 feet so that it can convey the design storm runoff from the Southeast and Southwest Plan Areas. This improvement shall be undertaken under the direction of the Sonoma County Water Agency.

(b) The Roseland Creek channel, and portions of the Naval Creek channel in the vicinity of the Air Center, would be widened and reconfigured to accommodate the design storm runoff, under the direction of the Sonoma County Water Agency.

(c) Improvements which may be necessary to the natural drainages which cross or are downstream from the Southwest Plan Area shall be undertaken with the approval of the Sonoma County Water Agency and to the design standards specified in the Sonoma County Flood Control Design Manual. These improvements shall take the form of a naturalized channel to the specifications of the City of Santa Rosa. (See also Section 3.2.3, Vegetation and Wildlife, for additional information regarding stream modification.)
Impact 3.2.2-2

Development construction activities for infrastructure projects, including the Bellevue Interchange described on page 3.2.2-24, within the Southwest Area Plan could result in short-term increases in erosion. (PS)

During the construction period, soils at the site could be exposed to the erosive forces of wind and storm runoff to a potentially significant degree. When de-vegetated and excavated, they would be subject to gullying under the influence of moderate to heavy rains if preventive action were not taken. Grading activities on the site for foundations, structures and parking lots, could adversely affect downstream water quality through erosion, the transport of sediments and dissolved constituents entering the natural receiving waters and increasing turbidity and contaminant load.

Deposition of eroded soil in Colgan and Roseland Creeks or other tributary streams would decrease their capacity as drainage facilities. Given the very low slopes in the areas where grading would occur, it would be possible to control erosion and sedimentation impacts within the Plan Area and prevent downstream damage. After completion of the individual projects, potential increased erosion would be stabilized and would not constitute a substantial long-term impact.

Mitigation Measure 3.2.2-2 (I)

(a) Construction shall be scheduled for the dry season.

(b) Any projects that result in grading of an area greater 5 acres shall be subject to an NPDES permit from the RWQCB. This permit requires that the applicant develop a Storm Water Pollution Prevention Plan. The permit requirements of the RWQCB shall be satisfied prior to granting of a building permit by the City of Santa Rosa.

(c) A soil erosion and sedimentation control plan shall be submitted to the City of Santa Rosa by the applicant for individual projects proposed under the Southwest Area Plan prior to grading. This plan may include, but not limited to, the following erosion control methods:

i. During construction, soil on graded areas shall be revegetated as soon as possible following disruption

ii. Use of interceptor ditches or drainage swales to intercept storm runoff from transporting sediment into drainages and to prevent sediment-laden runoff from leaving the disturbed area.

iii. Construction shall be restricted in the months of November through April.
iv. Silt fences shall be constructed to prevent sheet flow across adjacent areas and down gradient into drainages. These and further measures shall be designed through the use of the Universal Soil Loss Equation to calculate the proper storage capacity required of silt fences or gravel bags, and shall be implemented by the contractor prior to mass grading and other soil disturbing construction activities on-site.

(d) Disturbed areas, that have been graded for construction, shall be replanted as soon as feasible after the completion of construction. Plantings shall be used on surfaces of cut and fill areas to collect surface runoff and reduce erosion.

Impact 3.2.2-3

Increased runoff from additional impermeable surfaces within the Southwest Area Plan could lower the quality of stormwater runoff. (PS)

This project would replace existing pasture and sparsely developed residential with areas of commercial and residential development. The major contributor of contaminants to runoff in developed areas is primarily from the streets and gutters and other impervious areas directly connected to streets or storm drains. Between rainstorms materials accumulate on these surfaces in a variety of ways: for example, debris dropped or scattered by individuals; sidewalk sweepings; debris and other particulate matter washed into streets from yards and other unpaved areas; wastes and dirt from construction, renovation, and demolition; fecal droppings from dogs, birds, and other animals; remnants of household refuse dropped during collection or scattered by animals or wind; dirt, oil, tire and exhaust residue contributed by automobiles; and fallout of air-borne particles. Solids in the water contaminant load build up most rapidly during the first 48 to 72 hours after a major rainfall. In a residential area, this build-up can amount to about 500 pounds of solids per mile of curb by the end of the third day. Accumulation rates decrease with time; total accumulation reaches about 750 pounds per curb mile after two weeks.\textsuperscript{15}

\textbf{Without mitigation, the accumulation of urban pollutants would be a significant cumulative impact because uncontrolled overland flow from paved surfaces and landscaped areas would carry many of the above-listed contaminants, thereby contributing to the deterioration of the quality of storm-water runoff. The eventual result would be the deterioration of water quality in wetlands within the Plan Area. Reaches of drainage-ways downstream from the Plan Area, specifically those creeks such as Roseland, Naval and Colgan Creeks, that would carry stormwater runoff to Laguna de Santa Rosa}
and, eventually, to the lower reach of the Russian River, also would be subject to water quality deterioration (see Section 3.2.3, Vegetation and Wildlife, Impact and Mitigation Measure 3.2.3-4).

Regulations are becoming increasingly more stringent as the Regional Water Resources Control Board has commenced requiring permitting of urbanized areas stormwater drainage systems. The RWQCB has not yet required the City of Santa Rosa to undertake such NPDES permitting, stormwater controls such as detention areas and natural storm drain construction could offset future requirements by this jurisdiction.

Mitigation Measure 3.2.2-3 (I)

Easily cleanable catch-basins, debris screens, and grease separators or similar water quality protection devices should be installed in the channels and drainage facilities serving the Plan area. Maintenance of the facilities should be ensured through in-liciu fees paid to the City, or the establishment of homeowner associations.

Impact 3.2.2-4

Construction within areas of high groundwater and areas of seeps could need dewatering to allow construction and to protect foundations. (PS)

The depth to groundwater within the Plan Area is generally less than 20 feet. Several seeps, where groundwater discharges to the surface occur in the wetland across the Plan Area. Construction may involve excavation below the water table, and may need dewatering and installation of subdrains to provide adequate foundation drainage.

Mitigation Measures 3.2.2-4 (I)

Projects proposed within the Southwest Santa Rosa Plan within areas of high groundwater shall submit a geotechnical report which designates specific groundwater conditions and subdrain requirements and incorporates them in the project design.

Impact 3.2.2-5

Development permitted by the Southwest Area Plan will reduce infiltration in a natural groundwater recharge zone by about 25 percent. (PS)
About 1,200 acres in the northeastern third of the Plan Area is recognized as a natural groundwater recharge zone by DWR, because it is underlain by alluvial fan deposits. However, existing development has rendered about 42 percent of this area impervious, and the variable (but generally high) clay content of the soil reduces the permeability of the remaining unpaved space. The high water table retards downward migration of groundwater to the alluvial or sandstone aquifers. Consequently, the area is not considered a primary recharge zone by DWR. Nonetheless, recharge does occur to some extent within this zone, and its reduction or loss has the potential to adversely affect groundwater reserves in the long-term. Build-out under the Southwest Area Plan will raise the percentage of impervious surfaces in this 1,200-acre portion to about 54%, thus reducing, by about 25%, the unpaved space in the potential recharge zone. Although this is not a clearly identifiable significant impact of the Area Plan, it represents a cumulative reduction of potential recharge area and, therefore some alteration of the available groundwater supply.

Mitigation Measure 3.2.2-5 (I)

The City shall encourage the use of detention ponds to partially offset the loss of groundwater recharge area within the Plan Area. Such artificial recharge programs shall be coordinated through the Sonoma County Water Agency to ensure a rational, consistent and systematic approach. Maintenance of the detention ponds and potential for long-term accumulation of pollutants in the ponds should be considered in the design of mitigation programs that includes ponds.

PROPOSED PROJECTS

SETTING
The existing regional hydrology for the proposed projects is as described previously for the Area Plan, with some added details in the setting for each site.

Project #1: Dutton Place

This small project of 3.38 acres is adjacent to Colgan Creek at approximately elevation +135 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and is underlain by older alluvial fan deposits.
Project #2: Westmeadow Park

This site is small (4.5 acres), and is bordered on the west by Roseland Creek. The site is at approximately elevation +120 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.

Project #3: Western Gardens

This small project of 3.94 acres is at approximately elevation +120 feet msl on land that slopes south at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and is underlain by fluvial and younger alluvial deposits.

Project #4: Fouche Village

This project of 12.2 acres is at approximately elevation +135 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and is underlain by older alluvial fan deposits. Grading will require an NPDES permit. Potential groundwater contamination issues are addressed in the Hazardous Materials section.

Project #5: Southcreek Village

The site of 19 acres is adjacent to Roseland Creek, at approximately elevation +125 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Yolo clay loam soils, which have moderate percolation rates, and is underlain by younger alluvial fan deposits. Grading will require an NPDES permit. The use of BMPs and review of drainage capacity will be necessary for the project design.

Project #6: Baker Subdivision

This small project of 5.75 acres is at approximately elevation +110 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay (ponded phase) soils, which have slow percolation rates, and is underlain by younger alluvial fan deposits.
3.2.2 Hydrology and Water Quality

Project #7: Burbank Avenue Condominiums

This small site of 5.0 acres contains an estimated 0.27 acres of jurisdictional wetlands. The site at approximately elevation +122 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay and Wright loam (wet phase) soils. Clear Lake clay has slow percolation rates; Wright loam has moderate to very slow percolation rates. The site is underlain by younger and older alluvial fan deposits. Possible hydrological impacts that could be associated with surface water supply and the importance of inflow to the wetlands habitat will need to be addressed in consultation with the reviewing biologists.

Project #8: Ash Drive

This small site of 2.36 acres contains some jurisdictional wetlands. The concerns regarding water inflow to wetlands habitat will need to be addressed in consultation with the reviewing biologists. The site is at approximately elevation +95 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) and Clear Lake clay (ponded phase) soils. Clear Lake clay has slow percolation rates; Wright loam has moderate to very slow percolation rates. The site is underlain by younger and older alluvial fan deposits.

Project #9: Courtside Village

This project of 68.5 acres is at approximately elevation +97 feet msl on land that slopes west at less than a 1 percent gradient. The site is covered by Zamora silty clay loam and Alluvial Land soils. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates. Alluvial Land soils are highly variable in their characteristics and must be tested at each site for design purposes. The site is underlain by younger and older alluvial fan deposits. Grading will require an NPDES permit.

Project #10: Martin Homeless Housing

This small project of 5.2 acres is at approximately elevation +96 feet msl. The land slopes west at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and is underlain by older alluvial fan deposits.
Project #11: Northpoint Village

This project of 61.2 acres is adjacent to Roseland Creek, at approximately elevation +105 feet msl, on land that slopes west at less than a 1 percent gradient. Jurisdictional wetlands have been identified on the site. Grading will require a NPDES permit. The use of BMPs, review of drainage capacity, and use of detention basins, will need to be developed in consultation with the reviewing biologists. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The site is underlain by younger and older alluvial fan deposits.

Project #12: Solarium 2010

This small project of only 0.67 acres is at approximately elevation +110 feet msl on land that slopes west at less than a 1 percent gradient. The site is covered by Alluvial Land soils. Alluvial Land soils are highly variable in their characteristics and must be tested at each site for design purposes. The site is underlain by younger alluvial fan deposits.

Project #13: Mountain View Homes

Thus small project of 1.17 acres is at approximately elevation +105 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay (ponded phase) soils, which have slow percolation rates, and is underlain by younger alluvial fan deposits.

Project #14: Lands of Kersch

This small site of 7.0 acres contains some jurisdictional wetlands. The concerns regarding water inflow to wetlands habitat will need to be addressed in consultation with the reviewing biologists. The site is at approximately elevation +102 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.

Project #15: Griffen Estates

This small project of 5.6 acres is at approximately elevation +112 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay (ponded phase) soils, which have slow percolation rates, and is underlain by younger alluvial fan deposits.
Project #16: Lands of Wismer

This site of 20 acres contains some jurisdictional wetlands. The site is at approximately elevation +102 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The site is underlain by younger and older alluvial fan deposits. The concerns regarding maintaining or diversion water inflow to the wetlands will need to be addressed in consultation with the reviewing biologists. Grading will require a NPDES permit.

Project #17: Pero Apartments

This small project of 1.3 acres is at approximately elevation +112 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay (ponded phase) soils, which have slow percolation rates, and is underlain by younger alluvial fan deposits.

Project #18: Burbank Housing

This project of 6 acres is at approximately elevation +112 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is at approximately elevation +102 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.

Project #19: Skidmore Acres

This small site of 7.0 acres contains some jurisdictional wetlands. The concerns regarding water inflow to wetlands habitat will need to be addressed in consultation with the reviewing biologists. The site is at approximately elevation +102 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.

Project #20: South Dutton

This site of 7.0 acres is adjacent to Colgan Creek at, approximately elevation +110 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.
Project #21: Orchard Park

This project of 10 acres is at approximately elevation +108 feet msl on land that slopes south at less than a 1 percent gradient. The site is covered by Wright loam soils, which have moderate to very slow percolation rates, and is underlain by older alluvial fan deposits.

Project #22: Springfield

This site of 75.8 acres contains some jurisdictional wetlands. The concerns regarding water inflow to wetlands habitat will need to be addressed in consultation with the reviewing biologists. The site is at approximately elevation +95 feet msl, on land that slopes south at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and is underlain by younger alluvial fan deposits.

Project #23: Young's Dutton Place

This project of 5.6 acres is at approximately elevation +102 feet msl on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The site is underlain by younger and older alluvial fan deposits.

Project #24: Lara Subdivision

This project of 4.55 acres is at approximately elevation +124 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and by Yolo clay loam soils, which have moderate percolation rates. The site is underlain by older alluvial fan deposits.

Project #25: Patrick Brennan Acres

This project of 8.7 acres is adjacent to Roseland Creek, at approximately elevation +118 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The site is underlain by younger and older alluvial fan deposits. Grading will require an NPDES permit. The use of BMPs and review of drainage capacity will need to be addressed in the project design.
Projects #26 & #32: California Stony Point/Bates Investment Property

The two sites included in this proposal contain some jurisdictional wetlands. The concerns regarding water inflow to wetlands habitat will need to be addressed in consultation with the reviewing biologists. The sites consist of 18.1 acres at approximately elevation +105 feet msl, on land that slopes southwest at less than a 1 percent gradient. The sites are covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The sites are underlain by younger alluvial fan deposits. Grading will require an NPDES permit.

Project #27: Lands of Pierre

This project of 17.28 acres is adjacent to Colgan Creek, at approximately elevation +112 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright loam (wet phase) soils, which have moderate to very slow percolation rates, and by Clear Lake clay (ponded phase) soils, which have slow percolation rates. The site is underlain by younger alluvial fan deposits. Grading will require an NPDES permit.

Project #28: Village Station

This project of 4.73 acres is at approximately elevation +100 feet msl, on land that slopes west at less than a 1 percent gradient. The site is covered by Alluvial Land soils, and is underlain by younger alluvial fan deposits. Alluvial Land soils are highly variable in their characteristics and must be tested at each site for design purposes.

Project #29: Bellevue Ranch

The projects proposed comprise a total of 126 acres. Grading will require an NPDES permit. Project #29A is at approximately elevation +110 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora and Clear Lake soils. Zamora silty clay loams have moderately slow percolation rates; Clear Lake clay (ponded phase) soils have slow percolation rates. The site is underlain by younger alluvial fan deposits.

Project #29B is at approximately elevation +110 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake clay (ponded phase) soils, and is underlain by younger alluvial fan deposits.
Project #29C is at approximately elevation +120 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora and Clear Lake soils, and is underlain by fluvial and younger alluvial fan deposits.

**Project #30: Air Center**

The Federal Policy of no net loss of wetlands, and the potential contamination of wetlands and drainage-ways by inflow of stormwater runoff from developed areas are concerns regarding existing wetlands. Inflow to wetlands, the use of BMPs, the review of channel drainage capacity, and the use of detention basins, will need to be considered for review and approval by the Sonoma County Water Agency, separately from the City’s review of the EIR. Any proposals that would affect management of the wetlands would need to be developed in consultation with reviewing Agency biologists or their biology consultants familiar with wetland habitat. Grading will require an NPDES permit. Project #30 ranges from approximately elevation +90 to +102 feet msl on land that slopes west and southwest at less than a 1 percent gradient. The site is covered by Wright and Clear Lake soils, which have moderate to very slow percolation rates, and slow percolation rates, respectively. The site is underlain by younger and older alluvial fan deposits.

**Project #31: Ken Martin Property**

This project of 7.4 acres is adjacent to Roseland Creek. The site is at approximately elevation +104 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Wright soils, which have moderate to very slow percolation rates, and is underlain by younger and older alluvial fan deposits. Grading will require an NPDES permit. The use of BMPs and review of drainage capacity will need to be included in project design.

**Project #32: (see Project #26)**

**Project #33: Bellevue Interchange (infrastructure)**

The site of the proposed interchange is at about elevation +117 feet msl and slopes west-southwest at less than a 1 percent gradient. The site is 5 to 7 acres in size, is covered by Wright loam, which has a moderate to slow percolation rate, and is underlain by older alluvial fan deposits. Grading will require an NPDES permit and the use of BMPs. Because of the project’s location (adjacent to both
sides of Highway 101) review of drainage capacity will need to be included in the design. (See Infrastructure Impact/Mitigation Measure 3.2.2-2 on pages 3.2.2-13/14 of this section of the EIR.)

Project #34: Southwest Fire Station

This small site of 0.8 acres contains some jurisdictional wetlands. The concerns regarding water inflow to the wetlands will need to be addressed in consultation with the reviewing biologists. The site is at approximately elevation +105 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Clear Lake soils, have slow percolation rates, and is underlain by younger alluvial fan deposits.

Project #35: Bellevue Elementary School

This project of 10.7 acres is at approximately elevation +115 feet msl, on land that slopes southwest at less than a 1 percent gradient. The site is covered by Zamora silty clay loam soils, which have moderately slow percolation rates, and is underlain by younger alluvial fan deposits.

IMPACTS AND MITIGATION MEASURES

PROPOSED PROJECTS #3, 4, 6, 10, 12, 13, 15, 17, 18, 21, 23, 24, 28, 33, and 35

Impact 3.2.2-6

Construction of these projects would increase surface runoff, have the potential to affect cumulative downstream drainage capacity, cumulative groundwater recharge, and possibly result in erosion and sedimentation of receiving streams. (PS)

Each of these proposed project would alter the existing hydrologic conditions at the project site to some extent, although these alterations would be relatively minor in the context of the watershed and the basin. However, each proposed project would contribute to the cumulative shift of the Plan Area from sub-rural hydrologic conditions to sub-urban hydrologic conditions. The parcels are small, do not contain wetlands and individually would not contribute significantly to off-site flooding downstream through capacity restrictions in culverts and channels. Possible exposure to local drainage problems because of the flat topography and the increased quantity of surface runoff from paving and coverage of each site could occur, as well as cumulative downstream channel and culvert capacity restrictions (see Impact 3.2.2-1), if the sites do not conform to the requirements of the Master Drainage Plan for the Southwest Plan Area. Continued development, even of small parcels,
has the potential to increase short-term erosion and sedimentation (see Impact 3.2.2-2), cause cumulative deterioration of surface water quality from the addition of contaminants from site coverage (see Impact 3.2.2-3), and cause some disruption of the water table and/or reduction of potential recharge of groundwater resources (see Impacts 3.2.2-4 and -5).

Mitigation Measure 3.2.2-6 (I)

Implementation of Mitigation Measures 3.2.2-1 through 3.2.2-5.

PROPOSED PROJECTS #1, 2, 5, 11, 20, 25, 27, 30, and 31

Impact 3.2.2-7

Construction of these projects would result in the disruption of an existing drainage channel. (PS)

Each of these proposed project would cause the same type of alteration to the existing hydrologic conditions at the project site as described in Impact 3.2.2-6, but to a greater extent in the cases of the larger sites (see below). Potentially significant surface water quality impacts (see Impacts 3.2.2-1, -2, and -3) are specifically identified for Projects #1, 20, and 27 because of their location adjacent to Colgan Creek, and for Projects #2, 5, 11, 25, 30, and 31 because of their location adjacent to Roseland Creek.

Mitigation Measure 3.2.2-7 (I)

Implementation of all Mitigation Measures, with particular emphasis on Mitigation Measures 3.2.2-1, -2, and -3.

PROPOSED PROJECTS #5, 6, 8, 9, 10, 11, 14, 16, 19, 20, 22, 23, 26, 28, 29(B), 30, 31, 32, 34, and 35

Impact 3.2.2-8

Construction of these projects would result in the disruption or destruction of known and potential vernal pool, vernal swale and freshwater emergent wetland habitat. (S)

Each of these proposed projects would cause the same type of alteration to the existing hydrologic conditions at the project site as described in Impact 3.2.2-6, but to a greater extent in the cases of the larger sites (see below). Significant water quality impacts (see Impacts 3.2.2-1, -2, -3, and -5) are
specifically identified for these projects because of the existence of wetlands on the sites (see Vegetation and Wildlife Section 3.2.3).

Mitigation Measure 3.2.2-8 (I)

Implementation of all Mitigation Measures with particular emphasis on Mitigation Measures 3.2.2-1, -2, -3, -5, and 3.2.3-3(a) and (b) (see Vegetation and Wildlife Section 3.2.3).

PROPOSED PROJECTS #9, 11, 22, 29, and 30

Impact 3.2.2-9

Construction of these projects would result in higher surface runoff than currently leaves the site, and the potential increase in short-term erosion and sedimentation, as well as the degradation of runoff water quality. (S)

Each of these proposed project would cause the same type of alteration to the existing hydrologic conditions at the project site as described in Impact 3.2.2-6, but to a greater extent because each site is fairly large (greater than 40 acres). Significant water quality impacts (see Impacts 3.2.2-1, -2, -3, and -5) are specifically identified for these projects because of the amount of grading needed, and the added contaminant load from landscaping and impervious surfaces.

Mitigation Measure 3.2.2-9 (I)

Implementation of all Mitigation Measures with particular emphasis on Mitigation Measures 3.2.2-1, -2, -3, and -5.


10. Dan Carlson, City of Santa Rosa, Water Department, personal communication, June 11, 1993.


14. The Rational Formula, \( Q = CIAK \)
   \[ C = 0.9 \text{ for the increased impervious area} \]
   \[ I = 0.96 \text{ for a 25 year storm of 1 hour duration} \]
   \[ A = 1856.1 \text{ acres which represents about 49% impervious area of 3800 acres} \]
   \[ K = 1.23, \text{ as mean seasonal precipitation in the area averages over the Plan are to be 0.96 inches/hour} \]

3.2.3 VEGETATION AND WILDLIFE

The Vegetation and Wildlife section discusses the biological resources that occur in the Southwest Santa Rosa Area Plan which could be affected by proposed projects, and evaluates potential project effects on these resources. The section contains three subsections: 1) general Introduction, 2) Setting, Standards of Significance, and Impacts and Mitigation Measures which apply generally to the Southwest Santa Rosa Area Plan and infrastructure developments, and 3) Setting, and Impacts and Mitigation Measures specific to individual projects proposed within the Southwest Santa Rosa Area Plan boundaries.

The Introduction discusses the methods used for literature analysis and field surveys and the regulatory framework used to assess impacts to vegetation and wildlife. The first Setting subsection (Southwest Area Plan Setting) discusses: 1) the plant communities and wildlife habitats which occur within the Southwest Area Plan, 2) known and potentially occurring sensitive species or sensitive habitats within the Southwest Area Plan, 3) the Standards of Significance used to determine the significance of identified impacts, 4) the Impacts to biological resources that would result from project activities, and 5) the mitigation measures intended to eliminate or reduce impacts to less-than-significant levels.

The second Setting subsection (Proposed Projects Setting) discusses: 1) the plant communities and wildlife habitats identified within the boundaries of each of the proposed 35 project sites, 2) known and potentially occurring sensitive species or habitats within specific project sites, 3) the Impacts to biological resources that would result from project activities, and 4) the mitigation measures intended to eliminate or reduce impacts to less-than-significant levels.

INTRODUCTION

Methods
For the purposes of distinguishing the various areas of study discussed in this section the following definitions will apply:

- Southwest Area Plan -- includes all developed and undeveloped areas within the Santa Rosa Southwest Area Plan (see Figure 2.2-3).
- Proposed Project Site -- any specifically identified project location within the Southwest Area Plan. The 35 projects which have been proposed for development are identified by a number
following the name of the Proposed Project which is referenced to site-specific discussions provided in Section 2, Project Description.

- Vicinity -- includes all developed and undeveloped areas immediately outside of Proposed Project property boundaries. In most cases these areas either abut the Proposed Project boundary or occur within less than 0.5 mile of it. In some cases, such as areas where creeks or drainages pass from a Proposed Project, "vicinity" areas may be found at greater distances from the Proposed Project, but are included in this analysis because they might be affected by actions inside the Proposed Project.

- Region -- includes all areas within a radius of 3 to 5 miles around the Southwest Area Plan. This large area is usually referred to in discussions of the probabilities for the occurrence of sensitive and migratory species on a specific Proposed Project or in its vicinity within the Southwest Area Plan.

Prior to field surveys, within either the Southwest Area Plan or individual Proposed Project, a list of sensitive plants, plant communities, and animals was obtained from the California Natural Diversity Data Base (CNDDB). This list was supplemented with information on sensitive plants from the California Native Plant Society Inventory (CNPS), the City of Santa Rosa, correspondence from the U.S. Fish and Wildlife Service (FWS), the California Department of Fish and Game (DFG), and other regional or local sources. The list of sensitive animals was expanded using geographic distribution and habitat information obtained from a variety of sources. During field surveys, special emphasis was placed on identifying the presence of any State- or federally-listed Threatened or Endangered plant or animal species, candidates for such listing, or plants or animals listed in various categories of sensitivity by local or regional organizations as listed in Appendix D.

Field surveys were conducted May 4-6, 1993 by an EIP botanist and May 10-14, and June 7, 1993 by an EIP wildlife biologist. During these surveys, the proposed project sites and surrounding areas within the Southwest Area Plan were examined on foot to identify and map their vegetative communities and habitats that might be potentially useful to, or that were probably occupied by, wildlife species. Ponds, drainage canals, and creeks were sieved or dip netted to search for amphibians or their larvae.

The results of the May and June field studies have been supplemented by biological information previously collected by LSA for the Santa Rosa Southwest Master Environmental Assessment. This EIR also relies on the field surveys and investigations of individual projects conducted by Charles A. Patterson.
Particular attention was given to habitats with high wildlife value, wetlands, and areas of natural vegetation such as woodlands, shrublands, and riparian thickets that might be impacted by proposed projects. All wildlife observed or identified through artifacts such as tracks, scats, burrows, or other definitive signs were noted. Plants were identified to species, when flowers or other identifying characters were present. A list of all plant and animal species identified within the Southwest Area Plan, and the scientific names of most species discussed in the text of this section, is provided in Appendix E. This list also includes animal species that could reasonably be expected to occur in the project region, as compiled from a number of sources.9,10,11

Regulatory Framework

To provide the reader with an understanding of the impacts to biological resources, this subsection discusses the laws, regulations, and policies used in the analysis of those impacts. Impacts can occur to vegetation and wildlife in general and to sensitive species and habitats in particular. Impacts to sensitive species and habitats are usually more highly regulated than are impacts to less sensitive resources. The standards used to determine significance are based on the following discussion.

Sensitive Plant and Animal Species. For the purposes of this EIR, a plant or animal is considered a sensitive species if it fits into one or more of the following categories:

- It is listed as Endangered (E) or Threatened (T), according to the provisions of Section 4 of The Federal Endangered Species Act (FESA).12 The U.S. Fish and Wildlife Service (FWS) administers the act.

- It is listed as Endangered (E), Threatened (T), or Rare (R), according to the California Endangered Species Act (CESA).13 The California Department of Fish and Game (DFG) administers the State act.

- It is a candidate for federal listing (C1 or C2) or State listing (C). While not protected by either FESA or CESA, some State and federal agencies manage candidate species to prevent them from becoming listed.

- It is considered by the DFG to be a species of special concern (CSC).14 DFG often requests that these animal species be considered in the impact section of environmental documents.

- It is a plant species that is included in the California Native Plant Society (CNPS) Inventory.15 Some State and federal agencies request that CNPS List 1 and List 2 plants be considered in the impact section. For instance, DFG often asks that CNPS List 1B species be included in rare plant surveys. Less frequently, an agency may request the inclusion of plants on the CNPS List 3 and List 4.
It is considered rare, threatened, or endangered under Section 15380(d) of the California Environmental Quality Act (CEQA) Guidelines. This section states, "A species not included in any listing identified in subsection (c) shall nevertheless be considered to be rare or endangered if the species can be shown to meet the criteria in subsection (b)." Thus, according to CEQA, a species may be considered endangered if its survival is in jeopardy due to loss or change of habitat (CEQA Guidelines Section 15380(b)(1)).

Many federal candidate (C1 and C2) plant species are also included on the CNPS List 1B, and most State and federal resource agencies have policies that extend some protection to these species. In considering impacts to biological resources, it is important to include impacts and potential impacts to species on the other CNPS lists because some of these species may be protected under CEQA, as described above.

By so defining sensitive species, confusion over the term rare and endangered is avoided because, for the purposes of this EIR, the terms rare, threatened, and endangered apply only to species listed R, T, or E by FESA or CESA. Sensitive species can be legally protected by FESA, CESA, or CEQA, or through policies issued by state or federal agencies.

If project activities require permits from a federal agency, and federally listed species are likely to be affected, a consultation between that agency and the U.S. Fish and Wildlife Service (FWS) is required by Section 7 of FESA.

Section 2090 of the California Fish and Game Code requires that State lead agencies consult with DFG if the project is likely to jeopardize the continued existence of State-listed Endangered or Threatened species. Section 2095 of the Fish and Game Code encourages DFG and FWS to work together to develop a coordinated biological opinion regarding sensitive species.

Loss of a sensitive species or its habitat is known as take, which means to harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. "Taking" of a federal- or State-listed species is always considered significant, while take of other sensitive species may be considered significant. Permits to collect, remove, or destroy listed species are known as incidental take permits and are issued under strict guidelines by the FWS or the DFG as authorized by either FESA or CESA. "Taking" of federal or State candidate species or other sensitive species may also be considered significant under CEQA Section 15380(d).
Sensitive Habitats. Sensitive habitats are those that are becoming more restricted in California because of agriculture and urban development. Typically, these include wetlands, riparian zones, native bunchgrass grassland, and some woodlands and forests. Sensitive habitats may also include those habitats that could support State- or federally-listed plant or animal species. Regional and local regulations and ordinances may also define sensitive habitat, and may include tree or creek ordinances that have been adopted by many cities and counties.

Wetlands. Section 404 of the federal Clean Water Act requires that a permit from the U.S. Army Corps of Engineers (COE) be issued in order to discharge fill into "waters of the United States" or wetlands. Wetlands that are regulated by the COE are known as jurisdictional wetlands. The Environmental Protection Agency (EPA) also has authority over wetlands and may veto a COE permit. Projects that would fill more than 10 acres require an individual permit and would be subject to a complete environmental review. Projects that would fill 10 acres or less may be eligible for a Nationwide Permit and would not require the same level of review as an individual permit.

On March 11, 1993, the COE issued Public Notice Number: 93-4 which advised of the proposed suspension of Nationwide Permit Number 26 (33 CFR 330, Appendix A (26) within the geographic area of the Santa Rosa Plain. Within this area, any party proposing an activity that may result in the discharge of dredged or fill material into any water of the United States including wetlands, will be required to apply for, and obtain, an individual Department of the Army permit prior to undertaking such activity. Projects within the Southwest Area Plan may be affected by this change.

The DFG also exercises some control over wetlands through Sections 1601 to 1603 of the California Fish and Game Code. These sections authorize DFG to put conditions on any project that would significantly alter natural stream flow or that would alter the bed or bank of a stream. Under this authority, DFG enters into a streambed alteration agreement with the landowner. Conditions of this agreement often function as mitigation measures in environmental documents.

Vernal Pools are shallow depressions occurring in grassland and some woodland habitats that fill with water from the winter rains and slowly dry up during the hot summers. Vernal Pools are found throughout California where soil conditions are favorable to their formation. The nature of Vernal Pools (hot and dry in the summer; cool and waterlogged in the winter) provide the ingredients for this unique system of vegetation. Many of the areas where Vernal Pools occur have been heavily
grazed, and yet introduced species have not come to dominate these habitats as much as they have in other associated grasslands habitats.

Plant species composition varies greatly from pool to pool, but most are native annual grasses and forbs unique to the vernal pool habitat; many species are on federal and State Threatened and Endangered lists. Urban and agricultural development throughout California has resulted in considerable loss of Vernal Pool habitat. Vernal Pools are common in the area of the Santa Rosa Plain included within the Southwest Area Plan.

Central Coast Oak Riparian. Riparian habitat occurs along rivers and streams and provides food, water, and shelter for many animal species. Much of the original extent of riparian habitat in California has been lost to agriculture, urbanization, and flood control. As a result, preservation of this habitat has become a prime goal of some State agencies and environmental groups. Riparian zones are subject to similar regulations and policies as wetlands. They may be considered "waters of the U.S." by the COE and thus fall under COE jurisdiction. Modification of riparian areas may also require a Streambed Alteration Agreement with DFG.

Coastal Prairie. This vegetative community is described as "a dense, tall grassland (to 1 m tall) dominated by both sod and tussock-forming perennial grasses". Most stands are quite patchy and variable in composition, reflecting local differences in available soil moisture capacity. Remnants of this sensitive community in the Southwest Area Plan, are now so degraded by mixed ruderal species that they are difficult for the untrained observer to identify. However, the identification during botanical surveys of perennial California oat grass (*Dactylis glomerata*), the single most important indicator species for this habitat, indicate the historic presence of Coastal Prairie on the Santa Rosa Plain and support its inclusion as a present-day habitat type at scattered locations within the Southwest Area Plan.

**SOUTHWEST AREA PLAN**

**SETTING**

**Plant Communities and Wildlife Habitats**

The development of the Wildlife-Habitat Relationships (WHR) System has provided resource managers and others with a system for defining communities more broadly than have other
The habitat descriptions provided in this section are based primarily on the WHR system and are also used in discussions of wildlife associations. Field studies of the Southwest Area Plan area conducted in May and June of 1993 used these habitat descriptions to describe the plant and wildlife habitats described in this report. Community names are primarily those used in the WHR system, but communities recognized by the CNNDDB and related sources are given where necessary.

What follows is a brief, general discussion of the plant communities and wildlife habitats which occur within the Southwest Area Plan and which may be affected by proposed projects. More details are given in the section devoted to site specific analysis.

**Tree-Dominated Habitats.** Trees form the dominant structural feature of this habitat where the tree canopy exceeds 10 percent of the cover. Tree-dominated habitats may also have a shrub or herb understory. Forests and woodlands are the main tree-dominated habitats, although the distinction between them is not clear. Differences in canopy cover are sometimes used to distinguish between woodland and forest, but this division is arbitrary and is difficult to use in the field. In California, vegetation dominated by oaks is often called woodland, regardless of the density of the trees, while vegetation dominated by conifers or other hardwoods is called forest. This convention is used here.

Tree dominated habitats areas are uncommon within the Southwest Area Plan. A mixed grove of mature pine, eucalyptus, and walnut is located west of the railroad tracks, between Proposed Project #1 and Proposed Project #4 (Figure 3.2.3-1). There is a diverse assortment of mature landscape trees in Proposed Project #12. A number of large, mature Valley Oaks and species of introduced trees are located in the southern portion of Proposed Project #30.

**Valley-Foothill Riparian.** Streambank woodlands can be difficult to categorize because the species mix can vary greatly depending on a number of environmental factors. Common riparian species include alder, cottonwood, and willow. Riparian forests and woodlands occur along rivers and streams, usually in areas of coarser, well-aerated soils in the valleys and lower foothills throughout California. These communities typically develop on the alluvial fans and terraces associated with gentle topography and low velocity stream flow at elevations below 3,000 feet. Woodlands of this general type are common along creeks and streams in Sonoma County.
Because riparian forests and woodlands are usually associated with a permanent or intermittent water supply, they provide food, water, and shelter for many wildlife species. As many as 50 species of amphibians and reptiles, 147 bird species, and 55 species of mammals are known to use riparian communities either as permanent residents or seasonal visitors. California quail, Nuttall’s and downy woodpecker, black phoebe, Pacific-slope flycatcher, Bewick’s wren, rufous-sided towhee, broad-footed mole, raccoon, deer mouse and southern alligator lizard are a few of the species associated with this habitat type.

A rich riparian habitat, dominated by arroyo willow, valley oak, California buckeye, and Oregon ash, with an understory of blackberry, and poison oak occurs along a reach of Roseland Creek which bisects Proposed Project #5 in the Southwest Area Plan (Figure 3.2.3-1).

**Valley Oak Woodland/Savanna.** The dominant species in this community is the deciduous valley oak. Valley oaks grow on flat, deep alluvial soils. Valley oak is scattered in grassland and riparian areas throughout the Southwest Area Plan area. Mature valley oaks occur in sufficient numbers and proximity to one another to be defined as "oak woodland" habitat in only a few areas. Six large valley oak trees are located in the northeastern corner of Proposed Project #11. Mature valley oaks and developing oak woodland occur on Proposed Project #25 and Proposed Project #26 (Figure 3.2.3-1).

High quality stands of regenerating valley oak woodland occur in several locations within the Southwest Area Plan where orchards have been abandoned or land has lain fallow for several years. A notable area of oak regeneration is located on Proposed Project #5. Valley oak regeneration is also occurring on Proposed Project #21, Proposed Project #9, Proposed Project #24, and Proposed Project #30 (Figure 3.2.3-1). These areas are significant, as natural valley oak regeneration is minimal in California.

The primary food source provided by this habitat is acorns. It has been reported that as many as 30 species of birds that live in oak woodlands use acorns for at least part of their diet. Species identified in this habitat type within the Southwest Area Plan include northern flicker, acorn woodpecker, scrub jay, plain titmouse, gray fox, and western fence lizard.
Shrub-Dominated Habitats. Shrub-dominated habitats exhibit a shrub canopy of 10 percent or more of the total area and the tree canopy never exceeds more than 10 percent of the site.\textsuperscript{26} This habitat type may have a herbaceous layer as an understory. These habitats are often called scrubs if they are dominated by species that are totally or partially deciduous, and chaparrals if they are dominated mostly by evergreen species.

Within the Southwest Area Plan shrubs are present in the understory of riparian habitat in Proposed Project \#5. There are no significant examples of shrub-dominated habitats of an identifiable description (i.e., chaparral) within the Southwest Area Plan.

Herbaceous Habitats. In herb-dominated habitat types, herbaceous cover exceeds two percent and trees and shrubs do not exceed 10 percent of the site.\textsuperscript{27} Such areas are generally considered barren if covered less than two percent by herbaceous species. Herbaceous habitats can be further subdivided into either upland or wetland habitats. Three herbaceous habitat types occur within the Plan area: annual/perennial grassland, freshwater emergent wetland, and vernal pools.

Annual/Perennial Grassland. Annual grassland is found throughout the valleys and foothills of California, usually below 4,000 feet. Annual grassland dominated by non-native species including ripgut brome, soft chess, and foxtail barley occurs in various places within the Southwest Area Plan where it forms the understory for the oak woodland/savanna habitats. Annual grassland occurs as a mosaic within rural and urban areas of the Southwest Area Plan.

Native perennial grasslands probably covered a great deal of the Santa Rosa Plain and Southwest Area Plan area at one time, but they have been largely eliminated by urban and agricultural development. Most grassland areas are dominated by annual grasses and forbs as the result of past and present grazing practices, although native grasses and forbs are common in some places. Remnants of native perennial grassland occur at Proposed Project \#31 and Proposed Project \#35, and other scattered locations within the Southwest Area Plan area (Figure 3.2.3-1). This habitat type is characterized by at least 10 percent cover by species of native bunchgrasses including California oatgrass, pine bluegrass (\textit{Poa scabrella}), wildryes, and fescues.

Although grassland habitat offers an abundance of food and prey species, it provides little wildlife shelter. Shelter, however, may be provided by nearby tree- and shrub-dominated habitats. Several
reptile species are common in grassland, and a number of mammals that live in burrows or dens can be found there as well. These species in turn serve as prey species for the numerous birds-of-prey that forage in open grasslands. Wildlife observed in this habitat type in the Southwest Area Plan include red-tailed and red-shouldered hawk, black-shouldered kite, American kestrel, mourning dove, American crow, western kingbird, western bluebird, western meadowlark, Botta’s pocket gopher, blacktailed jackrabbit and California vole.

**Freshwater Emergent Wetland.** This habitat is found in every county in California where the soil is saturated or at least periodically flooded. Wetland soils are usually composed of clay or silt, but organic soils also support wetland vegetation. The boundary between fresh emergent wetland and aquatic habitats is typically the deep-water edge of the emergent vegetation. Generally, this boundary occurs at a depth of about 6-1/2 feet. Vegetation in fresh emergent wetland must be adapted to saturated soils and low oxygen levels. Perennial species including cat-tails, rushes, and sedges are commonly found in wetlands of this type.

Within the Southwest Area Plan, freshwater emergent wetland vegetation occurs along the banks of the Colgan Creek Drainage Canal and its tributaries, in various drainage ditches along roadsides and in agricultural fields, and in and around the margins of small farm ponds.

A number of wildlife species require water for breeding, and several sensitive animal species use wetlands for most of their life cycle. Historically, wetlands in California have been drained for agriculture and other purposes, and, as a result, they are much less extensive today than they were in the past.

Freshwater emergent wetland areas provide a valuable source of food, water, and shelter for wildlife, and these systems are among the most productive habitats in California. Mallards, great blue and green-backed herons, red-winged blackbirds, barn and violet-green swallows, song sparrows, common and western aquatic garter snakes and pacific tree frogs were all observed in this habitat type within the Southwest Area Plan.
Vernal Pools. Within the Southwest Area Plan, vernal pools and vernal swales are located within grasslands or interspersed among scattered valley oaks. Over 650 acres of seasonal wetlands (pools, swales, and associated grasslands) are estimated within the Southwest Area Plan area (Figure 3.2.3-2). Some of these vernal pools support populations of the State and federal Endangered Sebastopol Meadowfoam and Baker’s bleenosperma. The Douglas’ Pogogyne and California Tiger Salamander also occur in these pools. There is potential habitat for vernal pool fairy shrimp and California Linderiella as well. Golden Eagles and American Peregrine Falcons hunt the pools. In winter, the pools provide valuable wintering habitat for resident and migratory shorebirds and waterfowl.

Aquatic Habitats. Aquatic habitats are water-dominated with less than two percent vegetative cover. Rivers, streams, lakes, ponds, and ocean are the main aquatic habitats of California.

Riverine/Creeks. Algae grows in creeks and hydrophytic vascular plants may grow in creek bottoms in the dry seasons. Valley-foothill riparian and freshwater emergent wetland are commonly found adjacent to creeks. In some cases, the riparian vegetation forms a solid canopy over a river or stream, and thus modifies the riverine environment. Small portions of the Colgan Creek Drainage Canal which passes through the Southwest Area Plan include areas of this habitat type. Fish, amphibians, and waterfowl are the most recognized animals that use this habitat, but it is also home to a large number of invertebrates. Raccoons, and skunks are mammals that forage in creek habitats.

Ponds. The largest amount of open water aquatic habitat within the Southwest Area Plan occurs in large seasonal ponds located in the east central portion of the Air Center (Proposed Project #30) and the large "FEMA" pool. These seasonal ponds support large numbers of waterfowl in winter.

Developed Habitats. Developed habitats are those that are created and maintained by man, including cropland and urban, landscaped settings. Areas of ruderal vegetation dominated primarily by introduced species adapted to disturbance, or "weeds", are included here.

Urban. Vegetation in urban areas includes trees, shrubs, and herbaceous species. Lawns represent artificial meadows and these are used by species such as blackbirds and robins that would typically use meadows in a natural environment. Many areas within the Southwest Area Plan have been mostly or completely developed as pasture for horses and sheep, or as hayfields.
A variety of animal species are well adapted to and common in urban environments, and habitat values vary depending on the diversity of plant species used in landscaping. Wildlife observed in urbanized areas within the Southwest Area Plan include American robin, European starling, house sparrow, house finch, black-tailed jackrabbit, California ground squirrel, Botta’s pocket gopher and western fence lizard.

Three additional anthropogenic communities are important here, mainly because of the role they play in the vegetation of portions of Sonoma County. They are Agrestal, Pastoral, and Plantation communities as described by Holland and Keil and consist of vegetation that is maintained by man.\(^{29}\)

**Agrestal communities.** These are comprised of plowed cropland and associated weedy vegetation. Crops are grown in portions of the Southwest Area Plan, however, agrestal communities are less important in this area today than in the past.

**Pastoral communities.** Now more common in Sonoma County than in the past, these developments are primarily used for dairy farming and the maintenance of sheep, horses, and other livestock. Much of the area has been seeded for pasture which often grades into the surrounding grasslands. In these pastoral settings, vegetation is often a mix of pasture or weedy species along with a few native species.

**Plantation communities** include vineyards, orchards, and other large-scale plantings of trees, shrubs, and vines. Plantation communities, mostly fruit orchards, were very common developments in the past on the Santa Rosa Plain. Several plum and walnut orchards within the Southwest Area Plan (Proposed Projects #5, #6 and #21) have been abandoned and lie fallow.

**Sensitive Species**

As described in the Methods section, a complete, detailed list of all potential sensitive plant and animal species which might be expected to occur in the Plan Area has been prepared and can be referred to in Appendix D.

**Plants.** Twenty listed plant species of concern to the California Native Plant Society have known locations either within the boundaries of the City of Santa Rosa, or in adjacent areas that may be influenced by land use changes occurring within the City.\(^{30}\) Three of these, Burke’s goldfields
(Lasthenia burkei), Sonoma sunshine or Baker’s blennosperma (Blennosperma bakeri), and Sebastopol meadowfoam (Linnanthes vinculans) are both State- and federally-listed as Endangered. One species, many-flowered navarretia (Navarretia plieantha), is listed as Endangered only by the State. Another species, Douglas’ pogyyne (Pogogyn e douglasii ssp. parviflora) is a federal candidate species for listing. Of these five species, the Sonoma sunshine (Baker’s blennosperma), Sebastopol meadowfoam, and Douglas’ pogoyne, along with Lobb’s aquatic buttercup (Ranunculus lobbii), a plant of limited distribution, have been observed within the vernal pools in the Southwest Area Plan (Figure 3.2.3-2).

The Santa Rosa area chapter of the CNPS (Milo Baker Chapter) has reported that Hoover’s semaphore grass (Pleurogon hoooverianus), a State- and federally-listed species, is known to occur in freshwater seeps and marshes in the general region of the Southwest Area Plan. In addition, a white-flowered Delphinium variegatum population (with no listing status), considered a “rare genetic race,” is known to occur east of Santa Rosa. Specimens of this color form for the species may possibly occur among the known colonies of typical Delphinium variegatum forma superbbum populations in the Southwest plan area. Davy’s semaphore grass (Pleurogon davyi), a CNPS List 4 plant, is known to occur in the western Santa Rosa Plains and potentially could occur in wetlands within the Southwest Area Plan. None of these species was observed during surveys for this report.

The Santa Rosa 2010 General Plan EIR includes six additional plant species of concern, Sonoma alopecurus (Alopecurus aequalis var. sonomensis), tall snapdragon (Antirrhinum virga), Clara Hunt’s milk vetch (Astragalus clarianus), nodding madia (Madia nutans), Kenwood marsh checkerbloom (Sidalcea oregana ssp. valida), and mountain jewelflower (Streptanthus tortuosus). None of these species are known to occur within or in the immediate vicinity of the Southwest Area Plan, and none of these species was observed during surveys for this report.

In its response to the Notice of Preparation for this project, the USFWS included four additional federal candidate plant species on a list of sensitive species that may occur in the area of the proposed Southwest Santa Rosa Area Plan. These are Thurber’s reedgrass (Calamagrostis crassiglumis), swamp harebell (Campanula californica), white sedge (Carex albida), and California beaked-rush (Rhynchosperma californica). There is potential for the occurrence of these species within the Southwest Area Plan, however, none were observed during surveys, nor are there any records of their occurrence within the Southwest Area Plan.
Animals. Although no State- or federally-listed Threatened or Endangered wildlife species are known to exist within the Southwest Area Plan, available habitats, though heavily altered and damaged by human activities, could provide sufficient requirements to permit the occasional occurrence of one or more fully listed species such as the peregrine falcon. However, habitats suitable for the maintenance and reproduction of this species are not available anywhere within the Southwest Area Plan.

In addition to fully listed Threatened and Endangered species, a search of the CNDDDB provided a list of Species of Special Concern to the DFG. The "Blue List" of birds published by the Audubon Society, also provided additional sensitive species which may occur in the region. In combination, these sources indicate the potential for existence of 1 mammal, 14 bird, 1 reptile, 3 amphibian, 1 insect, and 2 invertebrate sensitive species in the Southwest Area Plan. Additional sensitive species of concern to other local organizations or agencies might rightfully be added to this list which includes only species for which habitat requirements may exist within or near the Southwest Area Plan.

Although, in most cases, heavily damaged by agriculture and other developments, seasonal wetlands and vernal pools suitable for successful breeding by the California tiger salamander (Ambystoma tigrinum californiense), a federal Candidate 2 and California Species of Special Concern, are present at many locations throughout the Southwest Area Plan (Figure 3.2.3-3). Viable populations of this increasingly rare amphibian have persisted within the Southwest Area Plan. Adults and larvae were found in vernal pool and other wetland habitats in the southwestern portion of the Southwest Area Plan during visual searches and seining surveys for this report. The species is also reliably reported to occur at a number of sites within the Southwest Area Plan where seasonal wetlands had already dried out at the time of these surveys.  

Other species, included in various categories of sensitivity, observed within the Southwest Area Plan during surveys for this report included the great blue heron (Ardea herodias), great egret (Casmerodius albus), black-shouldered kite (Elanus caerulea), sharp-shinned hawk (Accipiter striatus), red-shouldered hawk (Buteo lineatus), common barn owl (Tyto alba), California gull (Larus
californicus), and loggerhead shrike (Lanius ludovicianus) (Figure 3.2.3-3). Summaries of the circumstances of these encounters are contained in Appendix D.

Standards of Significance

The Guidelines and Appendices for the California Environmental Quality Act (CEQA) list a number of conditions that will result in significant impacts to the environment. CEQA defines a significant impact as one that has a significant adverse effect on the environment. According to Appendix G of the Guidelines, a project will have a significant effect on biological resources if it will: (1) substantially affect a rare or endangered species of animal or plant or the habitat of the species; (2) interfere substantially with the movement of any resident or migratory fish or wildlife species; or (3) substantially diminish habitat for fish, wildlife, or plant species.

In addition to the Appendix G impacts, the Environmental Checklist Form (Appendix I) commonly used in the Initial Study phase asks if a proposed project will result in: (1) a change in diversity of plant or animal species; (2) a reduction in the numbers of any unique, rare, or endangered species of plants or animals; (3) the introduction of new species of plants or animals into the area; (4) a barrier to the migration or movement of animals; or (5) the deterioration of existing fish or wildlife habitat.

Individuals and other organizations and agencies may identify additional areas of potentially significant impacts. These impacts can result from tree ordinances and other local regulations, from consultation with State and federal agencies, and from scoping meetings and other forms of public participation.

For the purposes of this EIR, an impact will be considered significant if it results in:

- loss of any sensitive plant or animal species;
- loss or degradation of the habitat of any sensitive animal species;
- substantial loss of plant cover;
- conversion of one vegetation type for another; or
- loss of wetland or riparian habitat.
IMPACTS AND MITIGATION MEASURES

Cumulative impacts represent the sum of all impacts that occur throughout the project area, from several projects, resulting in a significant cumulative loss of habitats or increased cumulative noise levels and human activity in a given area that adversely affects habitat conditions. The Southwest Area Plan project could result in direct, indirect, or cumulative impacts to biological resources. Direct impacts may be short- or long-term, and occur when biological resources are altered, destroyed, or removed during the course of project construction, including the following: removal of vegetation by grading or filling; loss of individual trees from habitat clearing or construction-related deaths; loss of wildlife foraging, nesting, or burrowing habitat; and habitat disturbance that results in unfavorable substrate conditions for natural vegetative regeneration. Indirect impacts may also be short- or long-term, and occur when project-related activities affect biological resources indirectly through erosion, sedimentation, toxic spills, or increased levels of human disturbance. Where mitigation measures call for additional coordination and/or study, and these measures are not fully implemented as described, the net impact description would change to potentially significant or significant.

Impact 3.2.3-1

Construction of proposed residential and commercial developments within the Southwest Area Plan and the infrastructure of drainage improvements and water supply would result in the loss of an undetermined number of Valley Oaks and an undetermined acreage of regenerating Valley Oaks and Valley Oak Woodland. This would be a significant impact. (S)

Construction activities associated with grading and filling for residential and commercial developments, and construction of drainage improvements and new water mains specifically along Stony Point and South Wright Roads could result in removal or damage to trees or their root systems. The root zone of a valley oak typically extends one-half the radius of the canopy beyond the drip line (the area on the ground beneath the canopy of the tree, plus one-half the canopy area).

Valley Oaks are not State- or federally-listed. They are considered a sensitive species because they have been reduced in numbers or eliminated from much of their former range. They are included on CNPS List 4, a "watch list" of species for which regular monitoring is recommended. The Valley Oak is a "Protected Tree of Special Significance" under Sonoma County's Tree Protection and Replacement Ordinance No. 4014,\(^7\) and is designated as a "Heritage Tree" by the City of Santa Rosa Tree Ordinance 17-24.020.\(^8\) Valley Oak is sparsely distributed throughout the undeveloped
portions of the Southwest Area Plan as scattered trees along roadways in riparian woodland, and in association with creeks and drainage channels. Valley-Foothill Riparian woodland, including Valley Oak, that has high wildlife value is located in the vicinity of Burbank Avenue, north of Roseland Creek (Proposed Project #5). A large area of natural Valley Oak regeneration occurs adjacent to (north of) the Riparian Woodland.

**Mitigation Measure 3.2.3-1a**

Impacts to oaks should be avoided and groups of mature Valley Oaks should be preserved wherever possible. To ensure long-term preservation of oaks within the Southwest Area Plan, areas of natural oak regeneration (north of Roseland Creek and the intersection of West Robles Ave. and Mooreland Ave.) should be protected. Recommended avoidance, compensation, and enhancement measures would reduce this impact to insignificant. (I)

The City of Santa Rosa Tree Ordinance protects Valley Oaks by requiring a permit for removal of trees having a diameter of six inches or greater at 4.5 feet above grade, and by specifying special precautions which must be taken when construction activity or development takes place in the vicinity of oaks. These include fencing during construction, avoidance of disturbance and trenching within driplines, maintaining grade around trees, and prohibiting the placement of paving or landscaping requiring summer irrigation in the vicinity of oaks.

The Tree Ordinance requires replacement of trees that are removed or critically damaged during construction by a greater number of the same species. To preserve genetic integrity, project sponsors should mitigate for loss of Valley Oaks by replanting oaks grown from acorns obtained locally. Loss of oak woodland should be compensated for by preserving in perpetuity three acres of woodland for each one acre lost to project activities (3:1, acre for acre ratio). The exact size and number of replacement trees should be determined by the California Department of Fish and Game (DFG) and the reviewing City body.

Pre-construction consultation should be scheduled with the City and the CDFG regarding design, siting, and construction measures which will avoid impacts to Valley Oaks and Valley-Foothill Riparian Woodland and the development and implementation of a Valley Oak mitigation and monitoring plan.
A qualified biologist should monitor trees during construction and the following spring, develop a
revegetation plan, and monitor the growth and survival of the newly planted trees. Revegetation
plans should require monitoring newly transplanted trees for at least five years, and the replacement
of all transplanted trees that die during the monitoring period.

Mitigation Measure 3.2.3-1b

The City of Santa Rosa will require application of best management practices during
construction within the Southwest Area Plan area to reduce impacts to Valley Oaks. The
trees that should be avoided and protected during construction include the oaks along Stony
Point and South Wright Roads, Oak Woodland north of Roseland Creek in the vicinity of
Burbank Avenue, and any isolated oak tree that has a diameter six inches or greater as
measured 4.5 feet above the ground. Following best management practices during
construction and development and implementation of an oak woodland management plan
would reduce these impacts to insignificant. (I)

Best management practices should be included in the plans and specifications for Southwest Area
Plan projects. These should be reviewed in pre-construction meetings with the City of Santa Rosa
staff, the City’s contractor, and qualified biologists and should, at a minimum, include provisions that:

- construction drawings shall accurately locate areas to be avoided such as tree trunks, the root-
  protection zones;
- prior to construction the root-protection zone (1.5 times the canopy area) of sensitive trees
  shall be fenced using wire mesh fencing;
- construction staging areas be designated on plans and prohibit parking, loading, and grading
during all construction activities within root zones of all trees;
- a pre-construction conference be held with contractors to review best management practices
  and require bonding and fines to ensure the replacement of any inadvertently damaged trees;
- a tree specialist be consulted during design to accurately locate root protection zones and
  identify other specific measures that would limit potential indirect impacts on trees that may
  be encroached upon; and
- a drainage plan be designed that will avoid oak trees.

Mitigation Measure 3.2.3-1c

The City of Santa Rosa will require replacement of all lost Valley Oak trees (tree for tree)
at the ratio of prescribed in the Tree Ordinance.
Replacement of mature Valley Oaks with higher numbers of young Valley Oak trees, is intended to mitigate the loss of Valley Oaks from the project area. It is recommended that the City of Santa Rosa prepare an oak woodland mitigation plan for City projects prior to approval of plans and specifications. The plan should include tree replacement along roadways or in the vicinity of Roseland Creek or the intersection of West Robles and Mooreland Avenues on soils that are known to support Valley Oaks. Early consultations and field reviews with representatives from DFG and USFWS should be initiated by the City of Santa Rosa in order to develop a mitigation plan for replacement of oaks. The California Native Plant Society and the DFG guidelines for preparing mitigation plans recommend that new plants be of the same genetic composition as those lost from project activities. Therefore, it is recommended that the seed for new oaks should be collected from trees now existing in the vicinity of the project.

Impact 3.2.3-2

Construction of drainage improvements projects (Naval Creek) and residential and commercial development in the vicinity of Roseland Creek and the drainage swale located south of Highway 12, between North Wright and Fern Roads within the Southwest Area Plan would result in the loss of an undetermined acreage of Valley-Foothill Riparian Woodland. Loss of Valley-Foothill Woodland habitat would be a significant impact. (S)

Because of the importance of this habitat, the USFWS has placed riparian wetlands in Resource Category 2.39 Full mitigation is required for loss of riparian habitat.

Since the science of wetlands restoration, particularly riparian wetlands, is relatively new, limited data are available on the success of individual restoration efforts. In the case of riparian habitat, a relatively long period of time is required to establish even the basic structural characteristics representative of this community type. The USFWS has stated that conclusions on the growth and mortality of riparian restoration sites cannot be drawn with any certainty for 15 to 20 years following restoration.40

Mitigation Measure 3.2.3-2a

Impacts to Valley-Foothill Riparian Woodland should be avoided. To ensure long-term preservation of this habitat and the valuable wildlife corridors it provides within the Southwest Area Plan, the following avoidance, compensation, and enhancement measures would reduce this impact to insignificant. (I)
• Pre-construction consultations should be scheduled by the City of Santa Rosa with the DFG and the USFWS regarding design, siting, and construction measures which will avoid impacts to Valley-Foothill Riparian Woodland and the development and implementation of a mitigation and monitoring plan.

• A tree survey should be conducted by a qualified biologist or arborist which would quantify the number of trees to be removed and which would identify heritage trees. Understory should be listed in square footage. The exact size and number of replacement trees and understory should be determined by the DFG and the reviewing City body.

• When riparian vegetation is lost as a result of project work, the DFG recommends a 5:1 replacement ratio for all trees lost, using appropriately sized trees. For riparian understory vegetation a 1:1 replacement rate is generally required by area. 41

• A comprehensive mitigation and monitoring plan should be developed in consultation with a biologist. The revegetation plan should specify that replacement trees and understory plants originate from local sources.

• To further protect riparian habitat, the DFG recommends that project design observe a 100 foot setback from creek banks or the outer limit of existing riparian woodland for all construction. The final design width of the setback would need to be negotiated with the DFG.

• Where oaks or other protected or heritage trees are present in riparian woodland, mitigation measures outlined in the City of Santa Rosa Tree Ordinance, discussed above, should be followed.

• A qualified biologist should monitor trees during construction and the following spring, and should monitor the growth and survival of the newly planted trees. Revegetation plans should require monitoring newly transplanted trees for at least five years, and the replacement of all transplanted trees that die during the period. There should be a 90 percent success rate at the end of the five-year period.

Mitigation Measure 3.2.3-2b

The City of Santa Rosa will require application of best management practices during construction within the Southwest Area Plan area to reduce impacts to Valley-Foothill Riparian Habitat. The areas that should be avoided and protected during construction include the riparian vegetation along the un-named drainage channel south of Highway 12 and along Roseland and Naval Creeks. Strict adherence to best management practices and successful implementation of a comprehensive mitigation and monitoring plan (3.2.3-2a) could reduce this impact to insignificant. (1)
Best management practices should be included in the plans and specifications for Southwest Area Plan projects. These should be reviewed in pre-construction meetings with the City of Santa Rosa staff, the City's contractor, and qualified biologists and should, at a minimum, include provisions that:

- construction drawings shall accurately locate areas to be avoided such as tree trunks, the root-protection zones;
- prior to construction the root-protection zone (1.5 times the canopy area) of sensitive trees shall be fenced using wire mesh fencing;
- construction staging areas be designated on plans and prohibit parking, loading, and grading during all construction activities within root zones of all trees;
- a preconstruction conference be held with contractors to review best management practices and require bonding and fines to ensure the replacement of any inadvertently damaged trees; and
- a tree specialist be consulted during design to accurately locate root protection zones and identify other specific measures that would limit potential indirect impacts on trees that may be encroached upon.

Impact 3.2.3-3

Construction of residential, commercial, and public and private infrastructure projects could result in loss of known and potential vernal pool, vernal swale, and freshwater emergent wetland habitat within grassland areas and at creek crossings. Loss of wetland habitat would be a significant impact. (S)

The locations of identified and potential vernal pool wetlands that would be affected are shown in Figure 3.2.3-2. Approximately 45.16 acres of undelineated, delineated and potential vernal pool habitat could be affected by the 35 residential and commercial developments proposed for the Southwest Area Plan (Table 3.2.3-1). The infrastructure projects proposed to support this development would also contribute to potential impacts to vernal pools. Proposed road projects potentially affecting vernal pool habitat include:

1) The Bellevue-Ludwig Connector: a new 4 lane road between Colgan Creek Channel and Ludwig Avenue.

2) The Fresno Avenue-South Project (southernmost portion): a new 2-3 lane road between Northpoint Parkway and Ludwig Avenue.
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<td>Presence of Wetlands</td>
<td>Wetland Acreage</td>
<td>Wetland Delineation Completed</td>
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<td>Yes</td>
<td>0.39$^p$</td>
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</table>

NA = Not Applicable.
* = Estimated by EIP Associates
$^p$ = Determined by Charles A. Patterson

NOTE: All completed wetland delineations have been approved by the Army Corps of Engineers.
3) The Fulton/Wright Interchange Project: a 4-6 lane facility located on State Highway 12.

4) The Northpoint Parkway-East Project (vicinity of Roseland Creek Channel): a new 4 lane road between Stony Point Road and the southern portion of Dutton Avenue.

5) The Northpoint Parkway-West Project (vicinity of South Wright Road): a new 4 lane road between Corporate Center and Fresno Avenue and a new 3 lane road between Fresno Avenue and South Wright Road.

The crossing of Colgan Creek by the Northpoint Parkway-East Project may affect freshwater emergent wetland habitat within the flood control channel.

An undetermined acreage of undelineated, potentially jurisdictional wetlands could be affected by the construction of water distribution system improvements. Affected areas include vernal pool systems along or near the proposed water main alignments between Bellevue Avenue and Ludwig Avenue, between Northpoint Parkway and South Wright Road (near Santa Rosa Air Center), and between Ludwig Avenue and Northpoint Parkway (also near the Santa Rosa Air Station). Most of the water mains that would impact wetlands are proposed for locations within road right-of-ways. In this way, impacts on vernal pools would be minimized or avoided. The proposed SCWA Water Intertie which traverses the Southwest Area Plan, however, may affect vernal pools south of Northpoint Parkway between South Wright Road and Corporate Center Parkway.

An undetermined acreage of undelineated, potentially jurisdictional wetlands could be affected by the construction of drainage improvements within the Southwest Area Plan area. These include vernal pool systems along or near Naval Creek and the northern portion of the Stony Point Road North Conduit.

Construction of these infrastructure projects and residential and commercial development within the entire Southwest Area Plan area could alter existing hydrological characteristics of the vernal pool/swale system, or result in removal of habitat through grading or fill activities.

Mitigation Measure 3.2.3-3a

Impacts to wetland resources should be avoided or minimized by: (1) relocation of all site improvements from wetlands subject to the jurisdiction of the U.S. Army Corps of Engineers.
to portions of the property without such wetlands, (2) minimizing or reducing the size and area of site improvements within such wetland areas, (3) restricting the size and areas of construction sites within such wetland areas, or (4) using Best Management Practices. (I)

Goal OSC-2 of the Open Space and Conservation element of Santa Rosa 2010 establishes a city policy of preservation of vernal pool wetlands. If wetland impacts are to be avoided, habitat protection such as the use of fencing and buffers are recommended. A buffer should be established around existing vernal pool habitat. Fences should be to limit foot traffic and exclude off-road vehicles, bicycles, etc. The fencing should be a low profile design for aesthetic reasons and to provide unimpaired views of the wetlands from surrounding areas. The fencing should be designed to discourage public intrusion without interfering with the movement of wildlife.

If wetland impacts cannot be avoided, the following mitigation options are available to project applicants and the City. Such mitigation approaches are consistent with Santa Rosa General Plan Policies OSC-2a and OSC-2b, Implementation Actions and Objectives for Conserving, Wetlands, Vernal Pools, and Rare Plant Habitat.

Mitigation Measure 3.2.3-3b

For wetland impacts that cannot be avoided or minimized, project developers will (1) prepare a mitigation and monitoring plan in consultation with USFWS and CDFG to replace or restore lost wetland according to Corps guidelines, and either obtain (2) a 1603 Streambed Alteration Agreement from the CDFG or (3) a Section 404 permit to place fill in wetlands from the U.S. Army Corps of Engineers. (I)

Project applicants must apply to the CDFG for a 1603 Streambed Alteration Agreement for any construction within the banks of streams or drainages within the Southwest Area Plan. Under Section 1603 of the State Fish and Game Code, the CDFG has authority to reach an agreement with an applicant proposing to affect intermittent or permanent streams. The CDFG often accepts mitigation for stream course impacts as a product of the agreement. Regardless of whether or not federal action is involved for a given wetland, the project proponent must apply directly to the CDFG for a Section 1603 permit (Streambed Alteration Agreement) for any proposed impacts to stream or river courses, regardless of the amount of acreage affected. It is the policy of the CDFG that there will be no net loss of either wetland habitat values or acreage, and the 1603 Agreement will set forth construction restrictions and mitigation conditions for the issuance of a permit.
The Corps (COE) and the CDFG should be consulted as early as possible in the planning phases of any proposed project, regarding necessary permits and appropriate construction methods.

If not currently completed, project applicants must conduct a formal wetland delineation using established federal protocols to determine the amount of jurisdictional wetland within project areas and within the footprint of proposed infrastructure improvements. To comply with the State and federal no-net-loss wetland policy, a wetland mitigation plan would be developed that would create wetlands at no less than a 1:1 ratio of one acre created or enhanced for each acre lost due to project activities. If feasible, on-site wetland habitat compensation would be preferred, but off-site compensation may be an option, determined in consultation with the appropriate State and federal agencies.

As part of a Section 404 permit, the COE would require a mitigation and monitoring plan for replacing lost wetland. The replacement ratio could vary depending upon wetland values and extent of impact and is negotiated with the COE. The COE also has guidelines for preparing mitigation and monitoring plans, and these should be consulted for format and content. A mitigation plan that would meet COE requirements is also likely to be acceptable by the CDFG, the State Water Quality Control Board, and the EPA.

The mitigation plan should include performance standards and wetland monitoring procedures as part of the total mitigation plan package prior to approval of the Development Plan and COE use in the 404 permitting process.

A qualified biologist should monitor restored wetlands during construction and at seasonal intervals. The Mitigation Plans should require monitoring for at least five years, and should include a contingency plan to insure that wetland habitat values are not reduced over this time period. Because of the uncertainty of many attempts at wetland creation and the expected continued reduction in wildlife habitat value over the course of the minimum 5-year monitoring period, the impact to wetlands would remain significant. Successful completion of the required mitigation would reduce the level of impacts to insignificant as determined by successful restoration of wetlands after the monitoring period.
Mitigation Measure 3.2.3-3c

For wetland impacts that cannot be avoided or minimized, the City of Santa Rosa will prepare a mitigation and monitoring plan for City-sponsored infrastructure projects to conserve, replace and restore wetlands within or near the Southwest Plan Area. The City will also insure that a mitigation and monitoring plan be prepared for independently sponsored development projects to conserve, replace and restore wetlands within or near the Southwest Plan Area. (1)

A Conceptual Wetland Habitat Management Plan for the Southwest Santa Rosa Plan Area has been prepared by EIP Associates and presented to the City. As presented, the plan provides an approach and options for the conservation, replacement and restoration of wetlands in the Southwest Area Plan. In view of existing concerns about wetlands within the SW Santa Rosa Plan area, this conceptual outline of an area management plan presents a mechanism or process to guide habitat preservation and compensation planning for the Southwest Area. The plan recognizes past efforts to deal with the protection of the wetland system in the region. Models for such a plan exist in the Special Area Management Plans (SAMPs), Habitat Conservation Plans (HCPs), and Habitat Management Plans (HMPs) which have been implemented in other regions of the State to protect sensitive wildlife habitat and endangered species. The Conceptual Wetlands Habitat Management Plan provides an outline to focus future discussions on the range of mitigation approaches available to optimize the protection of vernal pools and associated plants and animals in the Southwest Santa Rosa Specific Plan area.

The essential structural and functional elements of this conceptual wetland management plan are:

1) A preserve area set aside and designated for "no take" of wetlands.

The set aside area designated for "no development" is justified as a preservation area based on biological or ecological criteria (e.g., general wildlife habitat values, state of disturbance, plant or animal species diversity, habitat patch size and spatial distribution or pattern, relationship to other habitat patches, habitat value to rare, threatened or endangered species or species of special concern, etc.). A consolidated area of vernal pool, vernal swale, and other seasonal wetland habitat would be retained as a preserve.

2) A designated wetland "take" area.

A "take" area for vernal pools and one for other seasonal wetlands is defined in the Plan. These areas would allow mitigated residential and commercial development, and infrastructure improvements. Wetlands in the "take" areas are distributed in a pattern of small or isolated vernal pools, seasonal wetlands, and sensitive species habitat. Wetland compensation would be required for unavoidable impacts to
wetlands within these take areas. The compensation could take the form of wetland creation and enhancement on site or within the designated wetland preserve area. A development fee could be assessed to lands within the "take" areas for acquiring conservation easements or fee-simple title to lands within the preservation area.

3) **Options for plan implementation and funding.**

Options for plan implementation, habitat management, and funding are presented in the Conceptual Plan. Compensatory habitat development and protection methods, procedures, specifications, responsibilities, and implementation strategies for habitat preservation are discussed in the Plan.

Prior to developing and finalizing the wetland mitigation plan, the Corps and the DFG should be consulted as early as possible in the planning phases of any proposed project, regarding necessary permits and appropriate construction methods. If not completed at the time of project initiation, a wetland delineation should be conducted to determine the amount of jurisdictional wetland within the Southwest Area Plan and within the footprint of each proposed development. To comply with the Corps and DFG no-net-loss wetland policies, the plan would be implemented in a way that would create wetlands at no less than a 1:1 ratio of one acre created or enhanced for each acre lost due to project activities.

**Impact 3.2.3-4**

Construction of residential and commercial development and infrastructure projects within the Southwest Area Plan area could alter existing hydrological characteristics of vernal pool/swale systems extending west to the Laguna de Santa Rosa and southwest to the Todd Road Vernal Pool Preserve. This would be a significant impact. (S)

Urban runoff resulting from development envisioned by the Southwest Area Plan may have a negative effect on vernal pool/swale systems, and associated sensitive plant and animal species, in the Laguna de Santa Rosa. The Todd Road Vernal Pool Preserve and areas of the Laguna de Santa Rosa contain several federal and State-listed plant species and several federal proposed and candidate animal species, this impact could be potentially significant to one or more sensitive species. Concerns include pollution, siltation, and downstream flooding. More impervious surfaces within the Southwest Area Plan will result in greater runoff, possibly leading to contamination, flooding, and habitat loss in downstream unincorporated areas. Street, road, or highway projects could adversely modify waterways that are part of ecosystems containing sensitive plant and animal species. National Pollutant Discharge Elimination System (NPDES) permit requirements may reduce the significance of these impacts (see Section 3.2.2, Hydrology and Water Quality, page 3.2.2-10).
Mitigation 3.2.3-4

Implementation of the NPDES permit requirements regarding the implementation of nonpoint pollution source control of stormwater runoff through the application of Best Management Practices could reduce vernal pool/wetland pollution and sedimentation impacts to a level of insignificance. (1)

Street, road, and highway projects should be neither designed nor implemented without soliciting referral agency input early in the planning process. Refer also to the discussion on flood control in Section 3.2.2, Hydrology and Water Quality, pages 3.2.2-1 through 3.2.2-13.

Impact 3.2.3-5

Grading activities during project construction activities, the development of residential land use, and the establishment of project landscaping in areas near the existing wetlands could inadvertently introduce exotic plants and domestic animals to sensitive wetlands outside of the direct impact area.

Grading activities could result in the introduction of plant species adapted to disturbed areas into adjacent wetlands. Usually these are "opportunistic" or weedy species that spread aggressively to for naturalized areas. Such species may include French and Scotch broom and Andean pampas grass.

The development of a residential project with non-native landscaping could result in the introduction of alien, exotic plant and animal species into existing and proposed wetlands. These introductions could displace native plant species, diminishing the wildlife habitat values of adjacent wetlands and increase predation of native wildlife species.

A common example would be the possible increase of feral cats that could be associated with the residential portion of projects. This could have serious effects on a number of different bird species that reside in or use the seasonal wetlands. Pampas grass is a classic example of a plant species used for landscaping that can spread into areas where it is not wanted and where it displaces more important native plants species. The potential introduction of domestic animals and plants into the wetlands is considered a significant impact.

Mitigation Measure 3.2.3-5

To minimize the expansion of exotic plants or animals into wetlands adjacent to proposed residential development, native plant species should be used for reseeding. Landscaping using
native plant species near appropriate buffer areas, and control measures for domestic cats should be implemented in accordance with wetlands mitigation and management plans or the Conceptual Habitat Management Plan. (I)

The potential establishment and expansion of exotic plant species in to wetland areas from graded areas could be minimized by temporary seeding of disturbed areas with native grass species. Prior to the approval of any project, a buffer zone should be established between proposed residential development and any wetlands located near or on the property. The City’s Creekside Setback Ordinance, Sections 20-05.727 to 20-05.729, sets forth minimum setbacks for new structures from waterways. The setback requirement, although established for public safety and property protection from stream bank failures and flooding, could provide natural corridors for wildlife along waterways and the edges of wetlands. Under the Creekside Setback Ordinance, the actual setback boundaries would be determined in project review by the Building Division of the Community Development Department. Wetland fill projects permitted under Section 404 of the Clean Water Act, as administered by the Corps of Engineers, typically require a range of setback (buffer) requirements for wetlands.

Landscaping within or near the buffer area should consist of native plants only. The developer’s landscaping plan should reflect the use of native plants and should be consistent with the goals and recommendations of the California Native Plant Society, Escaped Exotics Committee.

Controls of domestic cats should involve one or more of the following optional measures:

- residents in proposed residential units shall be discouraged from acquiring domestic cats that cannot be restrained with fences;
- CC&Rs could specify the prohibition of cats in the residences on the project site to prevent predation by cats; or
- if cat ownership is permitted, animals should be neutered and collared with bells to warn potential wildlife prey.

The implementation of this measure would reduce the impact to a less than significant level.
Impact 3.2.3-6

Development within the Southwest Area Plan will result in loss of grassland foraging area for sensitive bird species known to occur within the Southwest Area Plan. This would be a potentially significant impact. (PS)

Development within the Southwest Area Plan will result in loss of grassland foraging area for the Loggerhead Shrike, a federal candidate 2 species and California Species of Special Concern and loss of foraging area for several sensitive raptor species, including Sharp-shinned Hawk, Golden Eagle, Black-shouldered Kite, and American Peregrine Falcon. Human activity, noise, and disturbance adjacent to grasslands in the Southwest Area Plan could result in degradation of grassland habitat to the extent that it would become unsuitable.

Mitigation 3.2.3-6

There is no feasible mitigation available. As removal of grassland would restrict the area available within the Planning Area for foraging, this impact would remain potentially significant. (PS)

Impact 3.2.3-7

Development and related activities within the Southwest Area Plan could result in the loss of or damage to sensitive communities and/or to threatened and endangered plants and animals and/or their habitat. This would be a significant impact. (S)

Two federal- and State-listed Endangered plant species (Sebastopol meadowfoam and Baker’s blennosperma) and a federal candidate animal species (California Tiger salamander) are known to occur, and habitat is present for several "recommended" and federal candidate animal species in the extensive vernal pool and swale complex located in the western portion of the Southwest Area Plan where the urban boundary encroaches upon the flood plain of the Laguna de Santa Rosa.

Because the May and June 1993 field surveys conducted for the Draft EIR were conducted too late in the season to identify the presence or absence of "recommended" federal candidate species, California Linderiella and Vernal Pool Fairy Shrimp, additional surveys were conducted on February 14, February 19 through February 22, and on March 1, 1994. All wetland features contained within the proposed project sites were examined. California Linderiella were found at several locations on sites #11 and #30 in areas of wetlands that appear not slated for development, based on existing plans. California Linderiella were also found at the FEMA site east of project site #30 (see revised
3.2.3 Vegetation and Wildlife

Figure 3.2.3-3), an area not designated for development. No other invertebrate species in any category of concern were found anywhere on any of the other project sites. No specimens of Ricker's Water Scavenger beetle or San Francisco Forktail damselfly were found in potential habitat that could support these species.

Additional searches of wetland habitats considered suitable for the breeding and development of the California Tiger Salamander were conducted during the time periods noted above by biologists familiar with the amphibian. Eggs of this species were found on site #22 and in a vernal pool near site #11 (in areas not currently planned for construction). In early March, Tiger Salamander larvae to seven millimeters in length were seined from wetlands on site #22 but none were found near site #11. No Tiger Salamanders or their larvae were found in any other aquatic habitats on designated project sites within the Southwest Area. This recent field information confirms earlier reports with regard to the distribution of this amphibian within the Southwest Area.

Mitigation 3.2.3-7(a)

Implement Mitigation Measures 3.2.3-3a, 3.2.3-3b, and 3.2.3-3c. If sensitive species (California Limeriella, Vernal Pool Fairy Shrimp) are officially listed by the state or federal agencies as endangered, threatened, or rare in the future, and if avoidance is not feasible: initiate a species recovery plan in conjunction with a wetlands compensation plan involving wetland creation. This would include removal or the topsoil, along with invertebrate eggs or cysts, in areas to be impacted, and transporting the soil to newly created pools or seasonal wetlands.

Avoidance of wetland impacts is the preferred mitigation approach. If impacts to wetlands remain unavoidable, however, wetland habitat compensation would be required. The Wetlands Habitat Mitigation Plan is designed to provide mechanisms to mitigate for loss of vernal pools and sensitive vernal pool plant species. The implementation options identified in the plan, such as measures for recovery and relocation of plants and soils, the establishment of buffers around vernal pool areas, protective fencing, and prescribed management and monitoring procedures would contribute to the mitigation of sensitive plant impacts. In addition, landscaping and landscape maintenance practices on adjacent community and private properties should be implemented to be compatible with vernal pool habitat values (see Mitigation 3.2.3-5).

Development of some proposed project sites and proposed roadway widenings and extensions likely would adversely impact California Tiger Salamander populations, in addition to the effects on
sensitive vernal pool plant species. The potential effect on tiger salamanders includes reduction of the size or quality of breeding pools, loss of open space used by migrating adults, loss of California ground squirrel burrows used by adults for estivation, and increased likelihood for roadkill of migrating adults. Mitigation for the California Tiger Salamander must take into account the different biological and ecological requirements of the early aquatic stages and the largely terrestrial adults. Failure to adequately consider either of these life history stages may lead to elimination or reduction of the species. A Habitat Management Plan (HMP) approach consistent with the Federal Endangered Species Act Section 10 process for "take" of this species could augment the Conceptual Wetlands Habitat Management Plan.

A thorough survey for all life history stages of the California Tiger Salamander in all Known and Probable Vernal Pool Areas and surrounding areas within the migratory range (up to greater than one mile) of the adults should be conducted by a qualified biologist to more accurately assess the potential impacts of this project on the species. It would be necessary to establish basic demographic and life history parameters for these populations, including migration distances, location of summer retreats, frequency of breeding by individual adults, and consistency of pond use over several years.

Mitigation for the proposed projects which are adjacent to and/or pass through known salamander breeding locations or migration routes should avoid all adverse impacts to the California Tiger Salamander.

Mitigation Measure 3.2.3-7(b)

- A portion of land should be set aside for the protection and preservation of the California Tiger salamander. This may coincide with vernal pools set aside for protection and preservation of sensitive plant species.
- Vernal pools which are in the direct line of new roads or new road alignments should be relocated as near their original position and condition as possible.
- Solid road dividers which would hinder salamander migration should not be used to divide roadways located within one mile of pools or the Known Migration Area.
- Under-road culverts for salamanders should be incorporated into the design of new or improved roadways adjacent to all known wetlands.
Impact 3.2.3-8

New development within the Southwest Area Plan area may result in the loss of additional vernal pools until the adoption of the Vernal Pools Master Plan under the Open Space and Conservation Element of Santa Rosa 2010. (S)

Goal OSC-2 of the Open Space and Conservation Element addresses vernal pool conservation. It is possible that reliance on existing regulations, as called for in Action OSC-2a, may result in the loss of additional vernal pools in the study area until the Vernal Pools Master Plan (anticipated by Santa Rosa 2010 by 1992) is completed and adopted. The City is coordinating its efforts to complete the Vernal Pool Master Plan with the Vernal Pools Preservation Plan. Funding for preparation of the Preservation Plan is being requested by U.S. Congresswoman Lynn Woolsey.

Mitigation Measure 3.2.3-8

Policy OSC-2b requires City review for conservation of vernal pools and compliance with the federal policy of no net loss of wetlands using the mitigation measures of avoidance, minimization, and compensation replacement. Completion of the Master Plan will result in an improved factual base for clear, specific restrictions on development near vernal pools, and will give the City greater legal basis for protecting these unique sensitive resources. (I)

Policy statements should be adopted which specifically control land clearing practices that remove vernal pools and other wetland habitats just prior to submission of a development proposal. This could be done by strengthening grading and clearing ordinances in those areas of the Southwest Area Plan in which vernal pools are known to occur. The final approval and implementation of the Vernal Pools Master Plan should include the input of State and federal resource agencies.

Impact 3.2.3-9

The construction of new roads (Fresno Avenue-South, Northpoint Parkway-West, and Bellevue-Ludwig Connector) and the improvement of existing roads (Ludwig Avenue) could result in disruption and wildlife mortality in areas of known wildlife migration or movements. (S)

New roads in areas of known or suspected wildlife movements such as existing vernal pools, wetlands and other low-lying drainage areas, could provide a barrier to wildlife migration within the Southwest Area Plan. Daily or seasonal movement of wildlife may be adversely affected by such barriers. Local populations of those animals unable to cross the physical barriers could potentially be fragmented.
For those more mobile wildlife species able to cross new roads, vehicle traffic on proposed new roadways may increase the incidences of road kills.

**Mitigation 3.2.3-9**

Implement Mitigation Measure 3.2.3-7(b).  (I)

The recommendations to reduce impacts to salamanders and other small vertebrates include the prohibition of the use of solid road dividers that would hinder animal migration. The use of sufficiently sized under-road culverts and other underground passageways could provide movement corridors between wetlands or drainage areas for amphibians, reptiles, and small mammals.

**Impact 3.2.3-10**

*Construction activity and practices associated with the proposed projects and infrastructure improvements could adversely affect water quality in creeks and intermittent drainages within the Southwest Area Plan.*  (S)

The storage of construction materials near creek crossings and the need for construction machinery access could result in direct or indirect impacts to wetland habitat and aquatic life. Construction-related erosion and sedimentation in creek channels or banks could result in a temporary reduction in water quality in the affected watercourses.

**Mitigation 3.2.3-10**

Construction practices which would avoid siltation or contamination of watercourses would reduce this impact to insignificant.  (I)

A DFG biologist should be consulted regarding construction practices which might be taken to reduce potential impacts to aquatic species. Project plans should include a complete description of methods that will be used to control erosion and prevent silt and deleterious materials from entering waterways. Implementation of these measures would reduce the impact to water quality to insignificant (see also Section 3.2.2, Hydrology and Water Quality).
PROPOSED PROJECTS

SETTING

Natural Resources vary greatly on the 35 proposed project sites within the Southwest Santa Rosa Plan Area. For the purposes of this report, site-specific analyses for individual projects are discussed under three general categories which reflect the potential for impacts to specific habitats or biotic resources available within proposed project boundaries; 1) project sites which have no identified potentials for impacts, 2) project sites which have only limited potentials for the occurrence of impacts and 3) project sites which have high potentials for the occurrence of impacts to biotic resources.

The descriptions of biological resources on each site is based on field surveys. EIP biologists surveyed the 35 sites proposed for development within the Southwest Area Plan in the spring of 1993. Complete sensitive species surveys were also conducted in previous years for several proposed projects within the Southwest Area Plan, and for some sites within the Southwest Area Plan for which projects have not yet been proposed. In some cases, wetlands delineations have been conducted and approved by the Army Corps of Engineers (see Table 3.2.3-1). The Corps has also approved mitigation plans for sensitive habitat and species within some of the project areas.

ProposedProject Sites With No Identified Potential For Impacts to Biotic Resources

Development of the following projects will not have a significant impact on sensitive habitat or species.

Project #1: Dutton Place. This 3.38 acres site is occupied by a single family home and a number of outbuildings associated with agricultural activity. The site is immediately south of a proposed Neighborhood Park Site.

The Colgan Creek Flood Control Channel is adjacent to the southwestern site boundary. There are no areas that qualify as technically defined seasonal or other wetlands types. No plant or wildlife species nor habitat for these species were observed on the site during surveys for this report and, due to agricultural land use, none would be expected to be present on the site.
3.2.3 Vegetation and Wildlife

Project #4: Fouche Village. This 12.2 acre parcel is the current site of an auto wrecking yard which is surrounded by industrial and urban uses. These uses restrict access and use of the site by wildlife. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. There are a small number of small Valley Oak trees scattered throughout the site. There are no areas that qualify as technically defined seasonal or other wetlands types.

Project #7: Burbank Ave. Condominiums. Plant and wildlife values are extremely limited on this 5.0 acre site because of long term use as a horse stable facility. It is surrounded in all directions by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. Natural topography of the site may have included seasonally wet swales and/or vernal pools. Recent wetlands delineations by the Corps of Engineers have confirmed that there are presently no areas that qualify as technically defined seasonal or other wetlands types on the site.

Project #12: Solarium 2010. Wildlife values are limited on this 0.66 acre site because of its residential and industrial development. The site is surrounded by roadways, homes, and other rural/agricultural properties which also limit access and use by wildlife. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report, with the exception of a few scattered mature Valley Oaks. Mature landscape trees of heritage size are present on the site. There are no areas that could qualify as technically defined seasonal or other wetlands types.

Project #13: Mountainview Homes. Wildlife values are limited on this 1.17 acre site because of its development for residential buildings, barns, sheds and other farm buildings. It is surrounded by roadways, homes and other rural/agricultural properties which also limit its access and use by wildlife. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, or habitat for these species were observed during surveys for this report.

The predominance of hydrophytic plant species indicates that this is the site of historic wetlands habitats. However, there are no remaining wetland habitats present on the site.
Project #15: Giffen Estates. Wildlife values are extremely limited on this 5.6 acre site because of its use for the production of hay and pasture. Much of the site is developed with several old barns, sheds, and other farm buildings, some of which might provide nesting or roosting sites for bats, swallows, or other birds. The site is surrounded in all directions by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife.

No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. A small number of mature Valley Oak trees are present. There are no areas that qualify as technically defined seasonal or other wetlands types.

Project #17: Pero Apartments. Wildlife values are extremely limited on this 1.3 acre site because of its use for the production of hay and pasture. It is surrounded in all directions by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. There are no areas that qualify as technically defined seasonal or other wetlands types nor are any habitats present.

Project #18: Burbank Housing. Wildlife values are limited on this site because of its development for residential buildings, barns, sheds, and other farm buildings and two Little League baseball fields. The site is surrounded by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife.

No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. A few mature valley oaks grow along the southern boundary. A variety of mature landscape trees of heritage size were observed on the site.

The site is adjacent to Roseland Creek and to both Known and Probable Vernal Pool areas designated by the Southwest Santa Rosa MEA. There are no areas on the 6.0 acre project site, however, that qualify as technically defined seasonal or other wetlands types.
Project #27: Lands of Pierre. The 17.28 acre site appears to have been used for hay production and is completely covered in a uniform stand of mixed grasses. A Red-shouldered Hawk was observed foraging over the site during surveys for this report. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, or habitat for these species were observed. No areas on this site are subject to regulation as COE jurisdictional wetlands.

Project #33: Bellevue Interchange. The proposed Bellevue Interchange would be sited in areas that were previously disturbed by the construction of Highway 101. North of Bellevue Avenue and west of Highway 101, a small rectangular vacant site is partially paved for the parking of automobiles. The remainder of the site is covered with closely mowed annual grasses and other weedy, ruderal species. It is surrounded by industrial and urban development which restricts access and prevents its use by wildlife. South of Bellevue Avenue and west of Highway 101, the land use is low-density residential. East of Highway 101, land use is residential and commercial.

No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. Sensitive biological resources would not be expected to be present due to past disturbance associated with highway construction and intensive use of the site. There are no areas that qualify as technically defined seasonal wetland.

Proposed Project Sites With Limited Potentials for Significant Impacts to Biotic Resources

Project #2: Westmeadow Park. Much of the 4.5 acre site is developed with residential buildings, several old barns, sheds, and other farm buildings, some of which might provide nesting or roosting sites for bats, swallows, or other birds. The site is surrounded in all directions by roadways, homes, and other rural/agricultural properties which limit its access and use by wildlife. The site is bordered on the north by a designated Riparian Forest Area. This site retains some wildlife values due to the proximity to Roseland Creek channel and the presence of a variety of vegetative communities including grasslands, shrubs, and mature valley oaks which provide an "island" of wildlife habitat in an otherwise sterile developed area. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. Numerous valley oaks are regenerating on the site. There are no areas that qualify as technically defined seasonal or other wetlands types.
Proposed Project Sites With High Potentials for Significant Impacts to Biotic Resources

Project #3: Western Gardens. The 3.94 acre site has been used for hay production. The site is a foraging area for the black-shouldered kite (*Elanus caeruleus*), a species of special concern to the DFG. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species were observed during surveys for this report. Development of the area would have only minor impacts on botanical resources. There are no areas that qualify as technically defined seasonal or other wetlands types.

Project #5: Southcreek Village. This 19.3 acre site contains very high wildlife habitat values due to the presence of young valley oaks, oak woodland, and adjacent riparian habitats along Roseland Creek. These areas provide accessible food stores and cover for wildlife, especially birds. The property contains the Riparian Forest Area identified by the Southwest Santa Rosa MEA. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat for the California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in seasonally wet areas on the site. The site contains a total of approximately 0.42 acres of jurisdictional wetlands. Permits from the Corps of Engineers and the California Department of Fish and Game would be necessary if the Creek were to be disturbed.

Project #6: Baker Subdivision. This is a flat, 5.75 acre rectangular site which was originally a plum orchard. The eastern half of the parcel has been fully developed as a rural residence with assorted other buildings. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for any of these species, were observed during surveys for this report. The western portion of the site lies within a Probable Vernal Pool area designated in the City of Santa Rosa, Southwest Master Environmental Assessment (MEA). Hydrophytic plant species occur along the western fence line. Marginal habitat for the California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in seasonally wet areas on the site. These areas may be jurisdictional wetlands potentially subject to the jurisdiction and regulation of the COE.

Project #8: Ash Drive. The 2.36 acre site is surrounded by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife. A few young valley oaks are particularly attractive to wildlife because they provide accessible food stores. Scattered, mature
valley oaks and shrubs provide foraging and nesting opportunities for a wide variety of wildlife species. The area is near a possible migration route of the California Tiger Salamander identified in the City of Santa Rosa Southwest MEA. Marginal habitat for California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in the seasonally wet areas on the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report.

The site lies within a Probable Vernal Pool area designated in the City of Santa Rosa Southwest MEA. A swale and adjacent depressions with wetlands characteristics and vernal pool plant species occupy approximately 25 to 35 percent of the site. A low depression along the western boundary extends into the adjacent Known Vernal Pool Area which does contain well-developed vernal pools. These features represent areas which are potentially subject to the jurisdiction and regulation of the COE.

**Project #9: Courtside Village.** This 68.5 acre site contains areas with high wildlife diversity due to the presence of a variety of habitats including grasslands, abandoned orchards and other agricultural lands, elements of scattered oak woodland, and weakly developed riparian habitats along drainages which traverse the northern portion of the site. The many young Valley Oaks developing on the site are particularly attractive to wildlife because they provide accessible food stores and cover. Mature Valley Oaks and other trees and shrubs along the riparian corridor provide foraging and nesting sites and concealment for wildlife.

One sensitive plant species, Sebastopol Meadowfoam (*Limnanthes vinculans*) was found to occur in a small section of swale habitat in the northeastern portion of the site during surveys in 1991 and 1992. The species was not observed during the 1993 surveys of the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report.

Habitat for California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in seasonally wet areas on the site. The site lies within a Probable Vernal Pool area designated in the City of Santa Rosa Southwest MEA.
4.37 acres of marginally qualifying jurisdictional wetland on the site are subject to regulation and permitting by the COE.

**Project #10: Martin Homeless Housing.** This flat 5.2 acre, rectangular site is completely surrounded by residential and industrial developments and roadways which greatly restrict its access and use by wildlife. Because it represents an "island" of undeveloped land in the area it retains relatively high wildlife values. A variety of habitats including grasslands, wet lowlands, scattered oaks, and weakly developed riparian habitats along drainages, provide accessible food stores and cover for wildlife.

Scattered mature Valley Oaks occur on the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat requirements for California Tiger Salamander were identified on the site. Habitat for Sebastopol meadowfoam, California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in seasonally wet areas on the site.

The site is within an area indicated as historic wetlands in the City of Santa Rosa Southwest MEA. Approximately two acres of marginally qualifying jurisdictional wetland on the northern portion and eastern and western boundaries of the site may be subject to regulation and permitting by the COE.

**Project #11: Northpoint Village.** Wildlife values are limited on this 61.2 acre site because of its significant alteration over a long period of time as a pasture for grazing of livestock. The eastern portion has several intensely used livestock yards and barns, and there are six large Valley Oaks located in the northeastern corner. It is surrounded by roadways, homes, and other rural/agricultural properties which also limit its access and use by wildlife. The FEMA property is located to the west of the site.

With the exception of California Linderiella (*Linderiella occidentalis*), no wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat for Vernal Pool Fairy Shrimp (*Branchinecta lynchii*), and California Tiger Salamander (*Ambystoma tigrinum californiense*) is present in seasonally wet areas on the site.
Six colonies of Sebastopol Meadowfoam (*Limnanthes vinculans*) occur in seasonal pools on the site. Two sensitive plant species, Lobb's Aquatic Buttercup and Douglas' Pogogyne, and California Oatgrass, an indicator of coastal prairie habitat, were identified during surveys for this report. Some Valley Oaks could be lost by development of the site.

Old Roseland Creek bisects the property. The site lies within a Known Vernal Pool area designated in the City of Santa Rosa Southwest MEA. The site contains 19 separate wetlands features, including some incidental and reconfigured seasonal wetlands. Subtle drainageways in the southwestern corner of the site support all of the local rare plant colonies on the site. Five of the wetland areas are reported to contain Sebastopol Meadowfoam. An eight acre, on-site, mitigation set-aside for the creation of habitat suitable for the preservation of Sebastopol Meadowfoam has been created in southwestern corner of the site. The set-aside area contains 0.7 acre of natural vernal pool and swale habitat (including seven pools in two separate swale systems) and all of the local Sebastopol meadowfoam colonies. The 8-acre preserve will be protected from inappropriate use by fencing and from undesirable runoff by a low berm. It will be managed primarily for the long term preservation of Sebastopol meadowfoam and its seasonal wetland habitats.

In 1988, the site was issued a Nationwide permit covering 1.0 acres of isolated, jurisdictional seasonal wetland. The 404 permit is now subject to reconsideration by the COE because it was approved prior to the 1990 formal proposal for federal protection under FESA for Sebastopol Meadowfoam.

**Project #14: Lands of Kersch.** This 7.0 acre site is entirely developed for agricultural uses. Fenced pastures, residential and farm buildings are on the site. Some of these structures might provide nesting or roosting sites for bats, swallows, or other birds. The site is surrounded in all directions by roadways, homes and other rural/agricultural properties which limit its access and use by wildlife.

A breeding Loggerhead Shrike (*Lanius ludovicianus*) was observed on the southern portion of this site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat for California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in shallow depressions in a wet swale and along the fence line near the south central portion of the site which abuts Project site #19. The site lies within a Known Vernal Pool area as designated in the City of Santa Rosa Southwest MEA. Small, scattered, depressions contain
vernal pool indicator species and could provide habitat marginally suited for plant or animal species of concern associated with wetlands habitats.

Project #16: Lands of Wismer. This 20.0 acre site is entirely developed for agricultural use as dryland pasture. Portions of the site contain abandoned orchards and adjacent pasturelands which are currently grazed by sheep. Also present are various residential buildings, several old barns, sheds, and other farm buildings, some of which may provide nesting or roosting sites for bats, swallows, or other birds. The site is surrounded in all directions by roadways, homes, and other rural/agricultural properties which limit its access and use by wildlife.

A breeding Loggerhead Shrike (*Lanius ludovicianus*) was observed on the southern portion of this site. No other wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat for California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) may be present in an artificial depression over a buried City sewer line along the eastern edge of the project site.

The site lies within a Known Vernal Pool area designated in the City of Santa Rosa Southwest MEA. A dispersed colony of Douglas’ Pogogyne (*Pogogyne douglasii ssp. parviflora*) occurs near the eastern edge of the site. No other rare, endangered or otherwise sensitive plant species were found during surveys for this report. There are no natural vernal pools, and no areas that qualify as technically defined seasonal or other wetlands types.

Project #19 (A and B): Skidmore Acres. This site, a combined 7.0 acres, is entirely developed for agricultural use. Fenced pastures, residential buildings, several old barns, sheds, and other farm buildings are currently on the sites. Some of these structures may provide nesting or roosting sites for bats, swallows, or other birds. The site is surrounded in all directions by roadways, homes, and other rural/agricultural properties which limit its access and use by wildlife.

A portion of the site lies within a Known Vernal Pool area designated in the City of Santa Rosa Southwest MEA. Depressional features present in shallow depressions along the fence line near the south central portion of the site contain vernal pool indicator plant species and support hydrophytic plants. Marginal habitat for the California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy...
Shrimp (*Branchinecta lynchii*) may be present. These areas could provide habitats marginally suited for plant or animal species of concern usually associated with wetlands habitats in the Santa Rosa area. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report.

Project #20: South Dutton (Weiss/Grossman). The 10.0 acre site appears to have been used for hay production. A Red-shouldered Hawk, a species of special concern to the DFG, was foraging over the site during surveys for this report. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed.

The site is adjacent to the Colgan Flood Control Channel. There are no significant, discernable hydrologic features such as creeks or ditches on the site. A linear string of shallow depressions east of the center of the northern portion of the site supports some natural vernal pool vegetation. They must be considered relatively marginal areas which, nevertheless, might be subject to the jurisdiction and regulation of the COE.

Project #21: Orchard Park. This 10 acre abandoned orchard site retains relatively high wildlife values due to the presence of a variety of trees, grassland, savanna, and shrub thickets. Young and mature Valley Oaks are particularly attractive to wildlife because they provide accessible food stores and cover. The availability of water and concealment provided by Himalaya Berry thickets are significant wildlife assets. Some of the regenerating Valley Oaks may be lost, but no highly sensitive features would be affected.

The site lies between Known Vernal Pool areas designated in the City of Santa Rosa Southwest MEA. The site contains approximately 0.55 acre of potentially jurisdictional wetland that would require a jurisdictional verification from the Corps of Engineers. No plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report.

Project #22: Springfield. The 75.8 acre site includes numerous homes and their associated yards and gardens, several horse pastures and corrals, plus a few vacant lots. One 10 acre parcel within the overall project area, located south of Pyle Avenue, still retains some relatively natural wetland
habitats and their associated elements. A diverse mixture of annual and perennial California native wildflowers and vernal pool species occurs on the site. There are some scattered mature Valley Oaks.

The site is in a Known Vernal Pool Area designated in the Southwest Santa Rosa MEA. This site and the contiguous area immediately south of it support 80 percent or more of the local biological resources of concern: wetlands, the California Tiger Salamander, and Sebastopol Meadowfoam. \(^\text{42}\)

The site contains about 2.5 acres of deep seasonal pools used by California Tiger Salamander (*Ambystoma tigrinum californiense*) for breeding and larval maturation. Habitat for California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) may be present in seasonally wet areas. Approximately 5 to 10 thousand plants of Sebastopol Meadowfoam (*Limnanthes vinculans*) occur on the site.

Two parcels just west of the center of the site contain approximately 4.5 acres of jurisdictional, seasonal wetlands. In addition, the overall study area also contains approximately 1.2 acres of more degraded, fragmented, and/or reconfigured seasonal wetland habitats in horse yards, along barns, and in the corners of pastures. There is also about 0.3 acres of man-made, but potentially jurisdictional, drainage ditches. In total, the area contains about 6.0 acres of jurisdictional wetlands.

**Project #23: Young’s Dutton Place.** This 5.6 acre project site is a flat, rectangular area covered with ruderal vegetation. A breeding Loggerhead Shrike (*Lanius ludovicianus*) was observed on the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report.

The western portion of the site lies within a Probable Vernal Pool area designated in the City of Santa Rosa Southwest MEA and may have included gentle undulations and/or actual vernal pools and swales in the past. Because of historic grading and diskng of the site for agriculture, however, there is little remaining evidence of these natural habitats or communities.

There are some small, scattered, depressional features, especially along the northwestern property line which are dominated by non-native weeds and grasses, including hydrophytic plant species. Marginal habitat for the California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) may be present in seasonally wet areas on the site. These marginal wetlands potentially may be subject to the jurisdiction and regulation of the COE.
Project #24: Lara Subdivision. This abandoned, 4.55 acre orchard site retains some wildlife values due to the presence of a variety of trees, including valley oaks which are particularly attractive to wildlife because they provide accessible food stores and cover. Some of the valley oaks are regenerating. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Because of historic grading and diskig for agriculture there is little remaining evidence of any swales or other wetlands features or other natural habitats or communities. There are no areas that qualify as technically defined seasonal or other wetlands types.

Project #25: Patrick Brennan Acres. This 8.7 acre site contains very high wildlife values due to the presence of a variety of vegetative communities including grasslands, shrubland, mature Valley Oaks, and developing oak woodlands which provide an "island" of wildlife habitat. These developing habitats are made even more useful to wildlife by the presence of adjacent wetlands habitats along the Roseland Creek channel which forms the eastern boundary of the site.

Other than Valley Oak, no plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. There are no areas that qualify as technically defined seasonal or other wetlands types.

Projects #26 and #32: California Stony Point/Bates Investment. Wildlife values on these contiguous, 31.28 acre parcels are limited because of significant habitat alterations. The development of pastures and surrounding roadways, homes, a nursery, and other rural/agricultural properties limits access and use by wildlife. Regenerating Valley Oaks and other species of trees and shrubs on Site 26 are particularly attractive to wildlife because they provide accessible food stores. Mature valley oaks and other trees and shrubs on the site provide foraging and nesting opportunities are significant wildlife assets on this site. A Black-shouldered Kite (Elanus caeruleus) was observed foraging over this site during surveys for this report.

Other than Valley Oak, and the Black-shouldered Kite, no plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. However, marginal habitat for the California Linderiella (Linderiella occidentalis) and Vernal Pool Fairy Shrimp (Branchinecta lynch) may be present in seasonally wet
areas on the site. Quaking grass, a Facultative Wetland species, is dominant over most of the area. A small wet area in the southwestern corner of the site supports other hydrophytic plants, including some vernal pool species.

Project #28: Valena (Village Station). This project site is a flat, rectangular 4.73 acre parcel surrounded by residential and industrial developments and roadways which greatly restrict its access and use by wildlife. However, because it is contiguous along its northwestern boundary with a large open area (site of the proposed Project #9) it retains relatively high wildlife values. The presence of a variety of habitats including grasslands, scattered Valley Oak, reconfigured seasonal wetlands, ditches, and weakly developed riparian habitats along drainages, provides accessible food sources and cover for wildlife. No wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization were observed during surveys for this report. Marginal habitat requirements for the California Tiger Salamander was identified on the site. Habitat for the California linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchii*) may be present in seasonally wet areas on the site.

Sebastopol Meadowfoam was reported in a small section of swale habitat, similar to that on this site, approximately 300 feet west of this parcel during surveys in 1991 and 1992. No other sensitive plant species have been reported from this or immediately adjacent locales, nor were any observed during surveys for this report.

The site lies within an area designated in the City of Santa Rosa Southwest MEA as underlain by hydric soils. Approximately two acres of marginal jurisdictional wetland are present on the northern portion of the site. Fill in 2 to 3 acres on the south central portion of the parcel may have converted other areas of historic wetlands.

Project #29A, B, and C: Bellevue Ranch. This site consists of three separate but similar parcels totalling 126.13 acres. The parcels are generally flat, treeless, grassland habitats, and have been historically cultivated for hay or as pasture for grazing livestock. The smallest of the three (#29B) is currently in use as a horse pasture, while the other two were completely covered by hay crops. No plant or wildlife species currently listed under any category of sensitivity by federal, State, or other agency or organization, were observed during surveys for this report.
Sites #29A and #29C are hayfields. On site #29B, a depression along the northwestern portion of the site contains some vernal pool plants including fringed downingia (*Downingia concolor*), popcorn flower (*Plagiobothrys bracteatus*), Douglas’ Meadowfoam (*Limnanthes douglasii ssp. nivea*), and Johnny Tuck (*Orthocarpus erianthus*). There are no natural vernal pools, but these depressions may qualify as technically defined seasonal or other wetlands types.

**Project #30: Air Center.** This 316.7 acre site includes remnant, mature and regenerating oak woodland, oak savanna, grassland, willow riparian, vernal pool, wetland, and ponds. Young Valley Oaks on the site are particularly attractive to wildlife because they provide accessible food stores and cover. Scattered and isolated areas of mature Valley Oaks, willows, and other trees and shrubs provide foraging, concealment, and nesting sites for a wide variety of wildlife species. The availability of water at a number of locations on the site in seasonal wetlands, channelized drainages and man-made ponds is also a wildlife asset. Approximately one-third of the land area within this site is covered with concrete runways, taxiways and ramp areas.

The site contains approximately 9.84 acres of natural, wet swales and vernal pools of the type and configuration preferred by the California Tiger Salamander which was observed in five separate water features. Habitats for the California Linderiella (*Linderiella occidentalis*) and Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) may be present in seasonally wet areas.

Black-shouldered Kites, a Sharp-shinned Hawk, and Barn Owls were observed on the site during surveys. Burrowing and Short-eared Owls have been observed as recently as the spring of 1993.

There is regeneration of Valley Oak on the site and a number of large, mature valley oaks and species of introduced trees in the undeveloped southern portion of the site. Wetland indicator plant species dominate the understory of the incompletely developed riparian corridor habitats.

Sebastopol Meadowfoam, (*Limnanthes vinculans*) occurs in ten of the mapped wetland features. A mitigation plan has been prepared for Sebastopol meadowfoam (Charles Patterson, 1992). *Pogogyne douglasii ssp. parviflora* and *Ranunculus lobii* have been identified in this area. The site has been reviewed by the COE, and a wetlands delineation has been verified. The area contains 21.72 acres of qualifying COE jurisdictional wetland contained in about 54 relatively separate features. These include 9.84 acres of natural wet swales and vernal pools, 3.55 acres of man-made ditches and
drainage channels, and 8.33 acres of other shallow, imperfectly drained flats and incidental depressions. This latter category includes one area where ten low excavated sewage effluent oxidation basins (totaling 5.73 acres) were created during or after the airport construction.

The Mitigation Plan for Sebastopol Meadowfoam was developed for Proposed Project #30 to minimize impacts to local wetland resources. As the Plan is implemented, the project would avoid 90 percent of the project area’s Sebastopol meadowfoam population, 71 percent of the natural wetland topography, 80 percent of the site’s total "deepwater" Tiger Salamander habitat, virtually all mature oaks and other significant trees, and all riparian woodland.

Project #31: Ken Martin Property. This 7.4 acre parcel is adjacent and contiguous with parcel #26. Wildlife values are limited because of significant alterations over a long period of time for hay production and pasture. The site is surrounded by roadways, homes, and other rural/agricultural properties which limit its access and use by wildlife.

A Black-shouldered Kite was observed foraging over the site during surveys for this report. There is one large Valley Oak near the northwest corner of the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. California Oatgrass and Meadow Barley are perennial California native grasses occurring on the site which are remnants of native prairie habitat which historically occurred over most of the Santa Rosa Plain.

A small, channelized portion of old Roseland Creek and a section of drainage channel cross the site in a southwesterly direction. If these channels are to be filled, it is likely that a 1603 Streambed Alteration Agreement would be required by the DFG and some level of mitigation may be required under that permit.

Project #34: Southwest Fire Station. A single-family dwelling is located in the northwest corner of the 0.81 acre site. The majority of this small, rectangular site is vacant. A channelized section of creek runs through the middle of the site. The area is surrounded by industrial and urban developments which restrict access and prevent its use by wildlife. The heavy growth of willows and blackberry bushes which cover the culverted exit of the creek present the most valuable wildlife habitat. No plant or wildlife species currently listed under any category of sensitivity by federal, State
or other agency or organization, nor habitat for these species, were observed during surveys for this report. There are no areas that qualify as technically defined seasonal wetland other than the actual creekbed itself (a total of about 2000 square feet, or 0.05 acres). Because the site contains a small section of channelized creekbed, it is likely that a 1603 Streambed Alteration Agreement would be required by the DFG and some level of mitigation may be required under that permit.

Project #35: Bellevue Elementary School. This 9.85 acre site has been used historically for orchards (now mostly removed), livestock grazing, and hay production. Portions contain abandoned orchards and pasturelands. At the time of the surveys for this report, much of the site had been disked and was fallow. Although there was a residence and associated landscaping at one time, most of this development has been removed and there are currently no structures on the site. The site is surrounded in all directions by roadways, homes and other rural/agricultural properties which limit its access and use by wildlife. Local alterations in the topography and hydrology (including fill on adjacent properties and extensive local ditching) have significantly changed the natural landscape and its ecological functions and values.

A Black-shouldered Kite was observed foraging over this site during surveys for this report. Only marginally suitable nesting sites for this species are available on the site.

There are a few scattered individuals of native California bunchgrasses, including California Oatgrass, Purple Needlegrass, and Meadow Barley on the site. California Oatgrass is an indicator species that is a remnant of the coastal prairie which historically occurred in the Santa Rosa Plain. There are a number of scattered young Valley Oak saplings in the southwestern corner of the site. No other plant or wildlife species currently listed under any category of sensitivity by federal, State or other agency or organization, nor habitat for these species, were observed during surveys for this report. The site contains approximately 0.34 acres of potentially jurisdictional wetlands in the southwestern corner, and approximately 675 linear feet (3 feet wide) of man-made ditch along the western fence line.

IMPACTS AND MITIGATION MEASURES

The following discussion of impacts and mitigation measures pertains to the individual projects proposed for development within the Southwest Area Plan. As noted in Section 2 of this EIR, Project Description, development plans for the individual project sites indicate primarily lotting
patterns, to the exclusion of specific building locations. Therefore, as described below, quantification of some vegetation and wildlife impacts is not possible at this time and a worst case scenario of impact is documented where necessary.

**Impact 3.2.3-11**

Construction of proposed Projects #2, #5, #8, #9, #10, #11, #21, #22, #24, #25, #26, #28, #31, #32, and #35 could result in the loss of an undetermined number of Valley Oaks and an undetermined acreage of regenerating Valley Oaks and Valley Oak Woodland. This would be a significant impact. (S)

**Mitigation Measure 3.2.3-11**

Implement Mitigation Measures 3.2.3-1a, 3.2.3-1b, and 3.2.3-1c. (I)

**Impact 3.2.3-12**

Construction of proposed Projects #5, #9, #10 and #28 could result in the loss of an undetermined acreage of Valley-Foothill Riparian Woodland. Loss of Valley-Foothill Woodland habitat would be a significant impact. (S)

**Mitigation Measure 3.2.3-12**

Implement Mitigation Measures 3.2.3-2a and 3.2.3-2b. (I)

**Impact 3.2.3-13**

Construction of proposed Projects #5, #6, #8, #9, #10, #11, #14, #16, #19, #20, #21, #22, #23, #26, #28, #29(B), #30, #31, #32, #34, and #35 could result in loss or alteration of existing hydrological characteristics of known and potential vernal pool, vernal swale and freshwater emergent wetland habitat within the Southwest Area Plan. Loss of Wetland habitat would be a significant impact. (S).

**Mitigation Measure 3.2.3-13**

Implement Mitigation Measures 3.2.3-3a, 3.2.3-3b, 3.2.3-3c and 3.2.3-4. (I)
Impact 3.2.3-14

Development and activity associated with proposed Projects #5, #6, #8, #9, #10, #11, #14, #16, #22, #23, #26, #28, #30, and #32 could result in the loss of or damage to sensitive communities and/or to threatened and endangered plants and animals and/or their habitat. This would be a significant impact. (S)

Mitigation Measure 3.2.3-14

Implement Mitigation Measures 3.2.3-3a (I), 3.2.3-3b (I), and 3.2.3-3c (I).

1. State of California, Department of Fish and Game. June 10, 1993. Natural Diversity Data Base (RAREFIND) printout including on the following 7.5 minute USGS quads (Santa Rosa, Sebastopol, Cotati, Two Rock).


33. USFWS, 1992. op. cit.


37. Sonoma County Tree Protection and Replacement Ordinance No. 4014.


3.2.4 AIR QUALITY

INTRODUCTION

The following discusses 1) federal, State and local criteria pollutant regulations and agencies governing maintenance of air quality, 2) federal, State and local air toxics regulations, 3) climatic factors affecting air quality, 4) existing air quality conditions in the City of Santa Rosa, 5) air quality impacts of the Southwest Area Plan/infrastructure projects, and the thirty-five proposed projects, and 6) mitigation measures which may be employed to reduce potential air quality impacts.

SOUTHWEST AREA PLAN

SETTING

In general, "criteria pollutants" are those which are pervasive and bountiful, for example, those which are emitted in vast quantities by society's use of fossil fuels. These pollutants have been regulated for more than two decades. "Toxic air contaminants" are pollutants which are highly toxic in small doses. These pollutants have only been regulated in the last few years.

Criteria Pollutant Regulatory Background

Federal. The 1970 Clean Air Act, with substantially more regulatory authority than the previous acts, gave the U.S. Environmental Protection Agency (EPA) the authority to set federal ambient air quality standards. The Act indicated the need for primary standards to protect public health and secondary standards to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. It also required that the federal standards be designed to protect those people most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by illness, and persons engaged in strenuous work or exercise (all termed "sensitive receptors").

In 1971, the EPA established federal standards for five major criteria air pollutants: photochemical oxidants (ozone), carbon monoxide (CO), suspended particulate matter (originally the standard applied to particulates of any diameter, termed total suspended particulates or TSP, but the standard was changed in 1987 to apply only to particulates less than 10 microns in diameter (termed PM\textsubscript{10}), nitrogen dioxide (NO\textsubscript{2}), and sulfur dioxide (SO\textsubscript{2}).\textsuperscript{1} The federal and State standards, given in Table 3.2.4-1, provide acceptable concentrations for specific contaminant levels in order to protect sensitive receptors from adverse effects.
The Federal Clean Air Act was amended in 1990 to require that projects involving federal action demonstrate conformance with federal standards. This is particularly applicable to transportation projects within non-attainment areas (the Bay Area is currently a non-attainment area for carbon monoxide and ozone). MTC, the regional transportation agency, is responsible for making conformance findings on transportation projects (Resolution 2270).

**California.** The Air Resources Board (ARB) coordinates and oversees both State and federal air pollution control programs in California, including the review and approval of attainment plans. As part of this responsibility, the ARB monitors existing air quality, establishes State air quality standards (which in many cases are more stringent than federal standards, as shown in Table 3.2.4-1), limits allowable emissions from vehicular sources, administers grants to local districts, and is responsible for overseeing the State Implementation Plan (SIP) to meet federal Clean Air Act requirements. The SIP is a compilation of air quality plans prepared by air quality districts throughout the State. The State air quality standards shown in Table 3.2.4-1 were established in order to protect sensitive people from adverse health effects.

**Bay Area Air Quality Management District.** In 1955, the California Legislature established what is today known as the Bay Area Air Quality Management District (BAAQMD). The BAAQMD has the power to develop and enforce regulations to control air pollution in the Bay Area. The BAAQMD has permit authority over all stationary sources of air pollutants and acts as the primary reviewer of air quality issues in environmental documents. Planning for the attainment and maintenance of federal air quality standards in the Bay Area has been the joint responsibility of the BAAQMD, the Association of Bay Area Governments (ABAG), and the Metropolitan Transportation Commission (MTC). The three agencies have prepared two Air Quality Plans, in 1979 and 1982, to address requirements of the federal Clean Air Act. The 1991 Clean Air Plan (CAP), adopted on October 30, 1991, unlike the previous plans, was prepared in response to requirements of the California Clean Air Act (CCAA).

The CAP is designed to meet the requirements of the California Clean Air Act, not the 1990 federal Clean Air Act Amendments. BAAQMD is currently preparing attainment plans to meet the requirements of the 1990 Amendments. Because the State ozone standard is more stringent than the federal standard, it is likely that the emission reduction strategies in the CAP will satisfy federal requirements.
### TABLE 3.2.4-1

**FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>California Standard $^2$</th>
<th>Federal Standards $^3$</th>
<th>Secondary $^5$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ozone</strong></td>
<td>1-hour</td>
<td>0.09 ppm ($180 \text{ ug/m}^3$)</td>
<td>0.12 ppm ($235 \text{ ug/m}^3$)</td>
<td>0.12 ppm ($235 \text{ ug/m}^3$)</td>
</tr>
<tr>
<td><strong>Carbon Monoxide</strong></td>
<td>1-hour</td>
<td>20.00 ppm ($23 \text{ ug/m}^3$)</td>
<td>35.00 ppm ($40 \text{ ug/m}^3$)</td>
<td>35.00 ppm ($40 \text{ ug/m}^3$)</td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>9.00 ppm ($10 \text{ ug/m}^3$)</td>
<td>9.00 ppm ($10 \text{ ug/m}^3$)</td>
<td>9.00 ppm ($10 \text{ ug/m}^3$)</td>
</tr>
<tr>
<td><strong>Nitrogen Dioxide</strong></td>
<td>1-hour</td>
<td>0.25 ppm ($470 \text{ ug/m}^3$)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Annual Average</td>
<td>---</td>
<td>0.053 ppm ($100 \text{ ug/m}^3$)</td>
<td>0.053 ($100 \text{ ug/m}^3$)</td>
</tr>
<tr>
<td><strong>Sulfur Dioxide</strong></td>
<td>1-hour</td>
<td>0.25 ppm ($655 \text{ ug/m}^3$)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>3-hour</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>0.05 ppm ($131 \text{ ug/m}^3$)</td>
<td>---</td>
<td>365 ug/m$^3$</td>
</tr>
<tr>
<td></td>
<td>Annual Average</td>
<td>---</td>
<td>80 ug/m$^3$</td>
<td>---</td>
</tr>
<tr>
<td><strong>Suspended Particulate Matter (PM$_{10}$)</strong></td>
<td>24-hour</td>
<td>50 ug/m$^3$</td>
<td>150 ug/m$^3$</td>
<td>150 ug/m$^3$</td>
</tr>
<tr>
<td></td>
<td>Annual Geometric Mean</td>
<td>30 ug/m$^3$</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Annual Arithmetic Mean</td>
<td>---</td>
<td>50 ug/m$^3$</td>
<td>50 ug/m$^3$</td>
</tr>
<tr>
<td><strong>Sulfates</strong></td>
<td>24-hour</td>
<td>25 ug/m$^3$</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Lead</strong> $^6$</td>
<td>30 Day Average</td>
<td>1.5 ug/m$^3$</td>
<td>1.5 ug/m$^3$</td>
<td>1.5 ug/m$^3$</td>
</tr>
<tr>
<td></td>
<td>Calendar Quarter</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Hydrogen Sulfide</strong></td>
<td>1-hour</td>
<td>0.03 ppm ($42 \text{ ug/m}^3$)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Vinyl Chloride</strong></td>
<td>24-hour</td>
<td>0.010 ppm ($26 \text{ ug/m}^3$)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Visibility Reducing Particles</strong></td>
<td>1 Observation</td>
<td>Visibility &lt; 10 miles</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

---

1. Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

2. California standards for ozone, carbon monoxide, sulfur dioxide (1 hr), nitrogen dioxide, and particulate matter - PM$_{10}$, are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, vinyl chloride, and visibility-reducing particulates standards are not to be equaled or exceeded.

3. National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentration above the standard is equal to or less than one.

4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency.

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92244
National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

Prevailing visibility is defined as the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Source: California Air Resources Board, 1992.
Metropolitan Transportation Commission. The Metropolitan Transportation Commission (MTC) is required to assess the conformity of the region's Transportation Improvement Programs (TIPs) and the Regional Transportation Plan (RTP) with the existing State Implementation Plan (SIP). MTC's Resolution No. 2270 has the revised set of procedures for conformity assessment in light of the Clean Air Act Amendments of 1990. MTC evaluates travel and emission projections for CO and ROC with and without Transportation Control Measures (TCMs). The emissions are projected using the model MTCFCAST.

Santa Rosa. The City of Santa Rosa addresses air quality issues, and provides standards and programs to avoid air-related impacts from existing uses and new development. The City of Santa Rosa has a Trip Reduction Ordinance which set city policy on reducing regional air pollution. The City of Santa Rosa General Plan has the following goal and implementation action and objective from the Open Space and Conservation Element.

Twenty Year Goal

[OSC-10] To continue to meet federal and state standards for air quality.

Implementation Actions and Objectives

[OSC-10a] Use existing regulations and the land use and circulation policies of the general plan to meet federal and state standards and, where possible, to maintain air quality superior to those standards.

Toxic Air Contaminants Regulatory Background

Overview. Toxic air contaminants (TACs) are a category of air pollutants which are highly toxic in small doses, but which are not regulated under the "criteria" pollutant regulatory framework. Examples include certain chlorinated hydrocarbons, certain metals, and asbestos. Adverse health effects of TACs may be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Several hundred such pollutants are currently regulated by various federal, state, and local programs, as described below.

Federal. Prior 1990, the federal Clean Air Act Amendments regulated TACs through the National Emission Standards for Hazardous Air Pollutants (NESHAP). The NESHAP program regulated only a few pollutants, such as asbestos, beryllium, mercury, and vinyl chloride from specific sources. These standards were a combination of limiting and administrative regulations. The NESHAP provided specific emission limits in addition to design and operation specifications. Administrative reporting
and monitoring requirements under NESHAP are extensive. These regulations apply to both existing and new facilities. The standards were developed solely on health consideration and do not consider economic effects.

The 1990 Clean Air Act Amendments set forth new requirements for sources of routinely released air toxics. The new NESHAP program: 1) expanded the chemical list to include a total of 189 hazardous air pollutants (HAPs), 2) directs the EPA Administrator to develop standards for HAPs, 3) directs the EPA to investigate the risk of HAPs in urban areas, including monitoring and analysis, and 4) includes consideration of the cost of control.

State. The first legislation in California to deal with ambient toxics was Assembly Bill 1807 (known as the Tanner Bill), adopted in 1983. The Tanner Bill established a statewide process to determine the need for and methods to set standards for toxic air contaminants. The legislative intent of the law is:

- to identify toxic air contaminants;
- to determine priorities for control;
- to achieve early control;
- to promote advanced control technologies and alternative processes;
- to assist local air pollution control districts; and
- to provide a consistent level of protection throughout the state.

In the 1980's the ARB researched and evaluated about 50 toxic air contaminants, not all of which have been placed on ARB's official list. In 1992, the California Legislature passed AB 2728, which directed the Air Resources Board to add to its TAC list the 189 hazardous air pollutants from the federal 1990 CAA.

The Air Toxic "Hot Spots" Information and Assessment Act of 1987 (AB 2588) requires specified facilities to submit to the local air pollution control agency a comprehensive plan to develop an inventory of air toxic emissions for a specified list of substances. After the inventory preparation plan is approved, the facility must implement the plan and submit the resulting facility air toxic emission inventory to the agency. The goals of the Air Toxics Hot Spots Act are to collect toxic air emissions data, identify facilities having localized impacts, determine health risks, and notify nearby residents of significant risks.
Regional. The BAAQMD is authorized to require permits for sources that generate toxic air emissions. The BAAQMD regulates the emission of a number of toxic air contaminants under Regulation 11, Rules 1 through 14, governing the emissions of lead, asbestos, beryllium, mercury, benzene, vinyl chloride, hexavalent chromium, ethylene oxide and dioxins. However, since there are not specific emission or concentration standards for most TACs, the BAAQMD evaluates a proposed project based upon a worst-case evaluation of the health risks of the project's TAC emissions.

The BAAQMD issued its first Air Toxics Risk Screening Policy and a Risk Management Policy in February 1988. The most recent revision, dated May 9, 1991, states that the District will review permit applications for emissions of compounds which may result in health impacts. The BAAQMD staff prepare a Risk Screening Analysis (RSA), which provides a worst-case analysis of the potential health effects of TAC emissions. The project proponent may also submit an RSA for District staff review. The BAAQMD uses the RSA to determine whether a proposed project would have a significant or an insignificant public health effect. The significance level for carcinogenic effects is a one-in-one-million increased cancer risk. The significance level for non-carcinogenic effects are based on threshold effects.

The BAAQMD Air Toxics Risk Screening Procedure lists approximately 120 contaminants and 16 sources which trigger a Risk Screening Analysis. After review, projects which are deemed insignificant require no further toxics review. For projects deemed significant, a Formal (more rigorous) Risk Assessment must be prepared, unless the project sponsor: 1) modifies the project to reduce the health risks to levels that are below the significance criteria; or 2) prepares a Refined Screening Analysis showing that risks are below the significant criteria. The District's policy is to deny a permit if the project would have significant cancer or non-cancer risks, but the District may still approve such a project, depending upon benefits to society, costs of mitigation, uncertainty in the risk analysis, or other relevant factors.

In the fall of 1992, the District circulated a draft proposed Regulation 2, Rule 5, "Risk Management for New Sources of Potentially Toxic Air Contaminants." The proposed rule emphasizes pollution prevention (by reducing the use of hazardous compounds), rather than pollution control (e.g., scrubbing). The proposed rule also focusses on total emissions, rather than incremental emissions. At the time of this writing, the proposed rule had not been adopted.
The discussion above applies to new projects. The District is also reviewing the toxic emissions of existing projects through the AB 2588, "Toxics Hot Spots," inventories. Large criteria pollutant emitters file reports estimating TAC emissions, and in some cases, health risk assessments. During 1992, the District was collecting this information in a Basin-wide inventory.

The BAAQMD has also adopted a "Toxic Air Contaminant Reduction Plan," which sets forth an ambitious plan for reducing the health risk to Bay Area residents from TACs. The plan's goal is to reduce the toxicity of emissions from sources subject to District regulation to less than 50% of the 1989 levels by 1995. "The plan focuses on the process of developing administrative rules, defining control programs, and collecting background information."6

Climate

The semi-permanent atmospheric high pressure cell (Pacific High) in the eastern Pacific is the basic controlling factor in the climate of northern California. Its seasonal shift from a position in the northeastern Pacific in the summer (dry season) to a location farther south in the winter (the wet season) determines local weather patterns, including amount of precipitation, cloud/fog cover and direction of prevailing winds.

The climate of Santa Rosa is typical of interior valleys, tempered by exposure to sea breezes. Summer monthly maximum average temperatures are in the low-80's°F with monthly minimum average temperatures of approximately 50°F. The mean number of days per year with temperatures above 90°F is 34. Winter temperatures range from an monthly maximum average temperatures of high-50's and low-60's°F to monthly minimum average temperatures in the high 30's°F. The mean number of days per year with temperatures below 32 °F is 37. The mean rainfall for Santa Rosa is 30.5 inches with 17.2 normally falling in the months of December, January, and February.

Air quality in Santa Rosa is determined by terrain effect and sea breezes through the coastal valley. South, south-southwest, and southwest winds are the most prevalent wind directions. These directions total approximately 36% of the surface wind, reflecting the channeling effect of the valley and hills to the east. Santa Rosa is exposed to breezes from the Pacific Ocean through the south and the upper Russian River Valley to the west-northwest. Santa Rosa has a high percentage of calm winds (20.2%). The annual mean speed is 5.8 miles per hour.
Existing Air Quality

Air Pollutant Problems and Trends - Bay Area. Present air quality problems come as a result of extensive industrial and urban development, especially from the widespread and intensive use of motor vehicles by Air Basin residents. Topographic and meteorological conditions often reduce the ability of the atmosphere to disperse air pollutants thereby allowing such pollutants to attain relatively high ambient concentrations. The criteria pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter \((\text{PM}_{10})\), sulfates, lead, hydrogen sulfide, vinyl chloride (chloroethane) and visibility reducing particles.

Regionally, the most severe and complex air quality problem is the relatively high level of ambient ozone experienced during warm, meteorologically stable periods in the summer and autumn. Ozone is not emitted directly from pollutant sources, but is formed in the atmosphere through a complex series of photochemical reactions involving reactive organic compounds (ROG, also referred to as reactive hydrocarbons) and nitrogen oxides \((\text{NO}_x)\). Motor vehicles account for the majority of the ROG and \(\text{NO}_x\) emissions. Although the Bay Area's highest ozone levels can fluctuate from year to year, standards are exceeded most often in the Santa Clara, Livermore, and Diablo valleys. Based on emission inventories prepared by the BAAQMD, about 50 percent of ozone precursors are generated by motor vehicles.

In contrast to ozone, carbon monoxide \((\text{CO})\) is a sub-regional problem in the Bay Area, because CO is a non-reactive pollutant with one major source, motor vehicles. Based on emission inventories prepared by the BAAQMD, about 85 percent of CO is generated by motor vehicles in the Bay Area. Ambient CO distributions closely follow the spatial and temporal distributions of vehicular traffic, and are strongly influenced by meteorological factors such as wind speed and atmospheric stability. The one-hour and eight-hour CO standards are occasionally exceeded in those parts of the Bay Area subject to a combination of high traffic density and susceptibility to the occurrence of surface based radiation inversions\(^7\) during the winter months. From 1987 to 1989, three sub-areas of the Bay Area were identified for exceedances of the CO air quality standards, San Francisco, San Jose and Vallejo.

Particulate levels in the Bay Area typically show a pattern of low values near the coast. They increase with distance inland and reach their highest levels in dry, sheltered valleys, such as the Santa Clara, Diablo, and Livermore Valleys. The most important anthropogenic sources in the Bay Area are demolition and construction activity, and motor vehicle travel over paved and unpaved roads.
However, agricultural operations and burning can contribute significantly to particulate concentrations in rural areas.

The major sources of oxides of nitrogen (NO\textsubscript{x} compounds), which have an important role in the formation of ozone, are vehicular, residential, and commercial fuel combustion. Concentrations of NO\textsubscript{2}, the most abundant form of ambient NO\textsubscript{x}, are highest in the South Bay, where the standard was last exceeded in 1980. The NO\textsubscript{2} standard has not been recorded in exceedance of the standard at any monitoring station in the Bay Area Air Basin since that time.

The burning of high sulfur fuels for activities such as electricity generation, petroleum refining, and shipping are the major sources of ambient SO\textsubscript{2}. The highest levels of SO\textsubscript{2} are recorded by monitoring stations located in a relatively narrow crescent centered on the bayshore of northern Contra Costa County, where the major sources are located. Bay Area seasonal maximums rarely exceed 50 percent of the standard, and SO\textsubscript{2} levels at most Bay Area monitoring stations are less than 10 percent of the standard. The SO\textsubscript{2} standard is currently being met throughout the Bay Area Air Basin.

**Air Quality Monitoring Data.** The BAAQMD operates a regional air quality monitoring network in order to gauge the Bay Area’s progress toward attainment of federal and State ambient air quality standards. At monitoring stations throughout this network, readings are taken regularly of the five major criteria air pollutants. On the basis of monitoring data from all stations in the Bay Area, the CARB has designated the San Francisco Bay Area Air Basin as a non-attainment area with respect to the federal and state ozone and PM\textsubscript{10} standards. The San Francisco Bay Area Air Basin portion of Sonoma County is in attainment for carbon monoxide, sulfur dioxide, and lead. The San Francisco Bay Area Air Basin is in attainment for nitrogen dioxide, and sulfates. The San Francisco Bay Area Air Basin portion of Sonoma County is unclassified for hydrogen sulfide, and visibility reducing particles.

A four-year summary of the data collected at the Fifth Street station in Santa Rosa, is shown in Appendix E, Table E-2. This air quality monitoring station is the closest to all the proposed projects in Santa Rosa. The data in Table E-2 reveals no violations of the ozone, CO, and nitrogen dioxide standards.
Existing CO Concentrations. Modelled existing concentrations at seventeen intersections are presented in Table 3.2.4-2. Modelling assumptions are given in the methodology section. Due to the low background CO levels, traffic volumes and existing emission factors, none of the seventeen analyzed intersections exceed the 1-hour standard of 20 ppm or the 8-hour CO standard of 9 ppm. Appendix E presents the modelling input assumptions.

Sensitive Receptors. One of the most important reasons for air quality standards is the protection of those members of the population which are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refers to specific population groups as well as the land uses where they would reside for long periods. Commonly identified sensitive population groups and land uses are presented below:

<table>
<thead>
<tr>
<th>Sensitive Receptor Group</th>
<th>Land Use Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>Residences, Schools, Playgrounds, &amp; Child Care Centers</td>
</tr>
<tr>
<td>Elderly</td>
<td>Residences, Retirement Homes, &amp; Convalescent Homes</td>
</tr>
<tr>
<td>Acutely Ill</td>
<td>Hospitals/Clinics</td>
</tr>
<tr>
<td>Chronically Ill</td>
<td>Convalescent Homes</td>
</tr>
</tbody>
</table>

Within the various projects proximities, there are existing and proposed residents adjacent to the all thirty-five sites and schools near some of the infrastructure improvements and proposed projects.

IMPACTS AND MITIGATION MEASURES

Basis For Impacts

The impacts associated with the Southwest Area Plan would affect air quality during construction and after the roadways are operative. The disturbance of soils during construction may affect air quality by emitting particulate matter. The combustion of fossil fuels during construction, to transport materials and workers and to operate equipment, would affect air quality by emitting air pollutants. Once the project is operational, air quality may be affected by exhaust emissions from mobile sources, such as automobiles, trucks, buses and motorcycles. Factors affecting air emissions would include changes in trip lengths, number of trips, vehicle speeds and traffic congestion.
TABLE 3.2.4-2
PREDICTED MAXIMUM 1-HOUR AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS (IN PPM)

<table>
<thead>
<tr>
<th>Location</th>
<th>Averaging Time</th>
<th>Existing 1993</th>
<th>SW Santa Rosa Unmitigated 2010</th>
<th>SW Santa Rosa Mitigated 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northpoint/</td>
<td>1-hour</td>
<td>10.0</td>
<td>7.2</td>
<td>7.8</td>
</tr>
<tr>
<td>Sebastopol/</td>
<td>8-hour</td>
<td>5.6</td>
<td>4.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Stony Point</td>
<td>1-hour</td>
<td>11.9</td>
<td>7.1</td>
<td>7.3</td>
</tr>
<tr>
<td>Stony Point</td>
<td>8-hour</td>
<td>6.8</td>
<td>4.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Hearn/</td>
<td>1-hour</td>
<td>7.0</td>
<td>5.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Stony Point</td>
<td>8-hour</td>
<td>3.7</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Bellevue/</td>
<td>1-hour</td>
<td>8.0</td>
<td>6.9</td>
<td>7.8</td>
</tr>
<tr>
<td>Stony Point</td>
<td>8-hour</td>
<td>4.4</td>
<td>3.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Todd/</td>
<td>1-hour</td>
<td>13.2</td>
<td>8.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Stony Point</td>
<td>8-hour</td>
<td>7.6</td>
<td>5.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Highway 12 EB/</td>
<td>1-hour</td>
<td>10.7</td>
<td>6.5</td>
<td>6.2</td>
</tr>
<tr>
<td>Wright/</td>
<td>8-hour</td>
<td>6.1</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Sebastopol</td>
<td>1-hour</td>
<td>11.2</td>
<td>7.8</td>
<td>7.1</td>
</tr>
<tr>
<td>Sebastopol</td>
<td>8-hour</td>
<td>6.4</td>
<td>4.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Corp Ctr Pkwy/</td>
<td>1-hour</td>
<td>10.1</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Sebastopol</td>
<td>8-hour</td>
<td>5.7</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Corp Ctr Pkwy/</td>
<td>1-hour</td>
<td>8.5</td>
<td>6.5</td>
<td>6.1</td>
</tr>
<tr>
<td>Northpoint</td>
<td>8-hour</td>
<td>4.7</td>
<td>3.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Highway 12 EB/</td>
<td>1-hour</td>
<td>7.2</td>
<td>5.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Dutton</td>
<td>8-hour</td>
<td>3.8</td>
<td>2.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Highway 12 WB/</td>
<td>1-hour</td>
<td>7.3</td>
<td>5.5</td>
<td>5.9</td>
</tr>
<tr>
<td>Dutton</td>
<td>8-hour</td>
<td>3.9</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Sebastopol</td>
<td>1-hour</td>
<td>12.3</td>
<td>7.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Sebastopol</td>
<td>8-hour</td>
<td>7.1</td>
<td>4.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Hearn/</td>
<td>1-hour</td>
<td>8.3</td>
<td>5.8</td>
<td>7.1</td>
</tr>
<tr>
<td>Dutton</td>
<td>8-hour</td>
<td>4.5</td>
<td>3.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Bellevue</td>
<td>1-hour</td>
<td>8.8</td>
<td>6.5</td>
<td>7.7</td>
</tr>
<tr>
<td>Bellevue</td>
<td>8-hour</td>
<td>4.9</td>
<td>3.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Hearn/</td>
<td>1-hour</td>
<td>11.8</td>
<td>7.0</td>
<td>7.3</td>
</tr>
<tr>
<td>Corby</td>
<td>8-hour</td>
<td>6.8</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Baker/</td>
<td>1-hour</td>
<td>11.6</td>
<td>6.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Corby</td>
<td>8-hour</td>
<td>6.6</td>
<td>3.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Stony Point/</td>
<td>1-hour</td>
<td>13.3</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Highway 12 EB</td>
<td>8-hour</td>
<td>7.7</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Bellevue/</td>
<td>1-hour</td>
<td>N/A</td>
<td>6.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Highway 101 SB</td>
<td>8-hour</td>
<td>N/A</td>
<td>3.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Bellevue/</td>
<td>1-hour</td>
<td>N/A</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Highway 101 NB</td>
<td>8-hour</td>
<td>N/A</td>
<td>3.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Bellevue/</td>
<td>1-hour</td>
<td>N/A</td>
<td>8.1</td>
<td>8.3</td>
</tr>
<tr>
<td>Santa Rosa Ave</td>
<td>8-hour</td>
<td>N/A</td>
<td>4.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Wight/</td>
<td>1-hour</td>
<td>N/A</td>
<td>6.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Highway 12 WB</td>
<td>8-hour</td>
<td>N/A</td>
<td>3.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Stony Point/</td>
<td>1-hour</td>
<td>N/A</td>
<td>4.9</td>
<td>5.0</td>
</tr>
<tr>
<td>Highway 12 WB</td>
<td>8-hour</td>
<td>N/A</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Ambient</td>
<td>1-hour</td>
<td>5.16</td>
<td>3.78</td>
<td>3.78</td>
</tr>
<tr>
<td>California</td>
<td>8-hour</td>
<td>2.58</td>
<td>1.89</td>
<td>1.89</td>
</tr>
<tr>
<td>Standards</td>
<td>1-hour</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>9.0</td>
<td>9.0</td>
<td>9.0</td>
</tr>
</tbody>
</table>

NA = Intersection either does not exist or there is no traffic data available.
Standards of Significance

Criteria used to determine the significance of an impact are broadly defined in CEQA. While the BAAQMD's *Air Quality and Urban Development Guidelines for Assessing Impacts of Projects and Plans* contains specific guidelines for determination of the significance of an air quality impact for project EIRs. Both CEQA and BAAQMD definitions of significance follow.

Air quality impacts can be classified as having effects either on regional or local scale. The CEQA Guidelines indicate that a project would have a significant effect if it would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. Impacts that would violate federal standards (i.e., primary standards designed to safeguard sensitive receptors or secondary standards to safeguard public health) or State standards are considered significant adverse impacts. Additionally, a project would be considered to have a significant effect if it would violate any BAAQMD regulations.

The BAAQMD identifies five tests to assess significance of impacts in the *Air Quality and Urban Development Guidelines for Assessing Impacts of Project and Plans*.

Test 1: Carbon monoxide emissions from any plan or project, which when added to background levels would result in CO concentrations above the State or federal standards.

Test 2: A plan or project would be found to have a significant impact if the total direct and indirect emissions, other than CO, equals or exceeds emission levels set by the BAAQMD to trigger Best Available Control Technology (BACT) requirements for a stationary source (Rule 2-2-301.1 of BAAQMD Rules and Regulations).

Test 3: Any plan or project would be found to have a significant impact if emission of criteria pollutants from combined direct and indirect sources equals or exceeds one percent of county emissions for a particular pollutant. For plans or projects with only indirect sources of emissions, exceedances of one percent of the transportation-related emissions of the county would constitute a significant impact.

Test 4: Any stationary source in which modeling determines that concentrations of any contaminant equal or exceed standards would be considered to have a significant impact.
Test 5: Population or employment projections for a sub-region, resulting from a plan or a project, which exceed the projections forecast in Projections 83 or Projections 85 prepared by ABAG would be found to have a significant adverse impact. This impact would result from a "lack of consistency or conformity with the Bay Area Air Quality Plan."

For transportation projects, a regional model has been developed for evaluating the cumulative impacts on regional pollutant loads in the basin. MTC is the responsible agency for evaluating cumulative impacts of transportation projects. The project conforms with the TIP if the project alternate results in less emissions than the no build scenario.
Methodology

Construction PM$_{10}$ Emission Calculations. Construction PM$_{10}$ emissions were estimated using EPA measurements taken at apartment and shopping center construction in the southwestern United States. These measurements, which provide a rough indication of the maximum emission rate, indicate that approximately 1.2 tons of dust are emitted per acre per month of construction activity. About 45 percent of this dust is comprised of large particles which would settle out rapidly on nearby horizontal surfaces. Large diameter particulates generated by construction are, therefore, of concern more as a soiling nuisance rather than for unhealthful impacts. The remaining fraction of small suspended particulates or PM$_{10}$, may aggravate respiratory problems of new residents inhabiting the project site before all construction is complete. A medium level of construction activity under minimal soil moisture conditions can result in 0.66 tons of PM$_{10}$ per acre per month.

Construction NO$_x$, ROC and CO Emissions. Construction NO$_x$, ROC and CO emissions are qualitatively discussed. Methodology for emission calculations is given but no calculations are made. Project plans are not yet specific enough to accurately approximate on-site NO$_x$, ROC and CO emissions and off-site NO$_x$, ROC and CO concentrations. Gasoline and diesel-powered heavy duty mobile construction equipment would be expected to make a contribution to NO$_x$, ROC and CO emissions.

Carbon Monoxide CALINE4 Modeling. The CO modelling was done for three scenarios. These scenarios are the existing 1993 scenario, the Year 2010 Plus Plan Without Traffic Mitigation scenario, and the Year 2010 Plus Plan With Traffic Mitigation scenario. Table E-3 in the Air Quality Background Information Appendix E presents the assumptions for inputs into the CALINE4 model used in this EIR.

Regional Emission Calculations. The regional emissions for each of the eleven projects were calculated using the CARB model URBEMIS3. The default speed of 35 mph, trip length distances were used. The annual average temperature of 60°F was used for emission calculations.
Impact 3.2.4-1

The Southwest Area Plan and Infrastructure improvements could result in construction-related emissions which could exceed federal and/or State air quality standards. This is considered to be a short term temporary and potentially significant impact.  

Construction of the Southwest Area Plan would result in construction-related emissions. These emissions would be generated by exhaust from transportation of workers and construction materials to the construction sites, exhaust from construction equipment operating at the construction sites, and from dust generated by disturbing the soil. Clearing, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces generate dust. It is not possible to estimate accurately the particulate concentration that would occur at or adjacent to construction sites because such concentrations are very sensitive to local meteorology and topography, to variations in soil silt and moisture content, and to the level of equipment use.

The BAAQMD's Test 2, identifying significant impacts for criteria pollutants, compares project emissions to BACT Threshold Levels. The BACT Threshold Level for particulates is 150 lbs/day. Assuming construction activities would occur 20 days per month, the EPA emission factor of 1.2 tons/acre/month would translate to 120 lbs/acre/day. Therefore, daily construction activities on 1.25 or more acres of land would constitute an exceedance of the BACT Threshold Level and would be a significant air quality impact.

Vehicular and construction equipment exhaust emissions are generated by a variety of gasoline and/or diesel-powered equipment. Exhaust emissions would include those associated with the transport of workers, machinery, and supplies to the project site, as well as those produced on-site by the operation of the construction equipment. Exhaust emissions from the transportation of workers and materials to the construction site is dependent on numerous factors including the modes of transportation used to reach the site and the distances traveled. Exhaust emissions from construction equipment used at the construction site is related to the energy intensiveness of the construction project and the condition of the construction equipment.

Project plans are not yet specific enough to accurately approximate on-site NOₓ, ROC and CO construction emissions and off-site NOₓ, ROC and CO construction concentrations, but the federal and state NOₓ and CO standards could be violated in the vicinity of construction site and NOₓ, ROC and CO emissions could reduce the AQMD's ability to reach attainment for ozone and PM₁₀. To
obtain an estimates of daily emissions associated with the heavy-duty construction equipment anticipated to be used, the appropriate emission factors should be multiplied by the number of hours of operation per day. To estimate construction-related NO\textsubscript{x}, ROC and CO emissions in tons per year, multiply the daily emission rate by the estimated number of days of project construction. Table G-4, in the Air Quality Background Information Appendix G, presents emission factors that can be used to estimate ROC and NO\textsubscript{x} emissions.

**Mitigation Measure 3.2.4-1**

Each project proponent is responsible for ensuring that the contractor reduces particulate, ROC, NO\textsubscript{x}, and CO emissions by complying with the air pollution control strategies developed by the Bay Area AQMD. The developer should include in construction contracts the following requirements:

1. The contractor shall water on a continuous as-needed basis all earth surfaces during clearing, grading, earthmoving, and other site preparation activities.

2. The contractor shall use tarpaulins or other effective covers for haul trucks that travel on public streets.

3. The contractor shall sweep streets adjacent to the project at the end of the day.

4. The contractor shall schedule clearing, grading, and earthmoving activities during periods of low wind speeds and restrict those construction activities during high wind conditions with wind speeds greater than 20 mph average during an hour.

5. The contractor shall control construction and site vehicle speed to 15 mph on unpaved roads.

6. The contractor shall minimize open burning of wood/vegetative waste materials from both construction and operation of the project. No open burning shall occur unless it can be demonstrated to the Bay Area AQMD that alternatives have been explored. These alternatives may include, but are not limited to, chipping, mulching, and conversion to biomass fuel. For any open burning, an AQMD permit must be obtained and done in conformance with AQMD regulations.

Implementation of these mitigation measures would substantially reduce emissions of particulates and other pollutants. The watering of exposed surfaces reduces dust by 50 percent.\textsuperscript{10} Sweeping streets adjacent to the project would remove silt which may have accumulated from construction activities. Vehicle speed control can also reduce fugitive dust emissions from unpaved roads and areas at construction sites by up to 60 percent assuming compliance with a 15 mph speed limit.\textsuperscript{11} With the addition of watering on a continuous as-needed basis all earth surfaces during clearing, grading,
earthmoving and other site preparation activities (item #1 under Mitigation Measure 3.2.4-1) particulate emissions would be reduced to an insignificant level.

Impact 3.2.4-2

Southwest Area Plan development would result in cumulative CO concentrations increases at intersections. This is considered to be an insignificant impact. (I)

The air pollutants associated with the development of the Southwest Area Plan would result in CO increases at intersections. The computer model CALINE4 was used in the analysis of twenty-two intersections for the Year 2010 Plus Plan Without Traffic Mitigation and Year 2010 Plus Plan With Traffic Mitigation scenarios. Results of the modeling are shown in Table 3.2.4-2. Modelling assumptions and methods are discussed in the methodology section. There are no exceedances of the California 1-hour or 8-hour CO standard at any of the analyzed intersections for both scenarios. This is due to the vehicle fleet getting cleaner as the older more heavy polluting vehicles are scrapped. This impact is considered insignificant.

Mitigation Measure 3.2.4-2

None required.

Impact 3.2.4-3

The Southwest Area Plan development would result in increased vehicular, home heating, home cooling, and wood burning emissions. This is considered to be a potentially significant impact. (PS)

The Southwest Area Plan development would result in the increase of total organic gases, carbon monoxide, nitrogen oxides, PM$_{10}$, and sulfur oxides emissions in Santa Rosa and the air basin due to vehicular, home heating, home cooling, and wood burning. Infrastructure improvements would not result in home heating, home cooling, and wood burning emissions. Vehicular emissions associated with the infrastructure improvements would result in better traffic flow and thus decreased vehicular emissions.
The Southwest Area Plan in the year 2010 would generate approximately 2,989 pounds per day of total organic gases, 35,188 pounds per day of carbon monoxide, 4,961 pounds per day of nitrogen oxides, 1,476 pounds per day of PM$_{10}$, and 531 pounds per day of sulfur oxides vehicular emissions. These emissions for the year 2010 would represent over 1% of the carbon monoxide, nitrogen oxides, PM$_{10}$, and sulfur oxides produced by vehicles in the county (Test 3 criteria).

The Southwest Area Plan would also increase unburnt combustibles emissions, which includes carbon monoxide, gaseous organics and particulate matter (i.e., smoke). Significant emissions are produced because fireplaces are inefficient combustion devices. The high, uncontrolled excess air rates and, especially, the absence of any sort of secondary combustion contribute to the high emissions. In addition, lesser amounts of nitrogen oxides, sulfur oxides, polycyclic organic material, which includes carcinogens such as benzo(a)pyrene (BaP), and creosote are important components of wood smoke. Wood burning emissions also vary due to the type of wood, moisture content, and the rate at which the wood burns.

Fireplaces emit more emissions per cord of wood than Phase II catalytic or non-catalytic stoves. None of the three wood burning methods are as clean as natural gas combustion or liquefied petroleum gas combustion. The new federal wood stove emission standards require that only "clean burning" Phase II devices be installed in new residences. Table 3.2.4-3 presents estimated particulate and CO emissions from these uses. Wood burning emissions could result in an estimated 44 tons per year of particulate and 2,253 tons per year of carbon monoxide emissions.\textsuperscript{12}

Home space heating, cooking and water heating emissions are small in comparison to wood burning emissions. Approximately 4.3 tons of CO and 0.6 tons of particulates would be emitted annually.

Home cooling emissions are produced indirectly through increased electrical usage by air conditioners. Electricity generation does produce CO and PM$_{10}$ emissions. Annual emissions produced by home cooling are not calculated due to the unknown energy efficiency of the proposed building and the type of air conditioner.

In conjunction with cumulative development, the Southwest Area Plan would produce additional air pollutants reducing the ability of the Bay Area AQMD to comply with the California Clean Air Act.
However, Area Plan buildup would remain within ABAG projections for population growth for the City of Santa Rosa between 1990 and 2010 (see Section 3.1.3, Population, Employment and Housing), and remain in conformance with BAAQMD Test 5. Thus, vehicular and combustible emissions impacts as a result of Area Plan growth would not be significant with respect to Test 5 criteria, and as confirmed with BAAQMD representatives, would take precedence over Test 3 criteria.\(^{13}\)
### TABLE 3.2.4-3
ANNUAL WOOD STOVE AND FIREPLACE EMISSIONS FOR THE SOUTHWEST SANTA ROSA AREA PLAN¹

<table>
<thead>
<tr>
<th>Type</th>
<th>DU²</th>
<th>Lbs. Particulate</th>
<th>Lbs. CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time w/Phase II</td>
<td>1,654</td>
<td>26,800</td>
<td>173,300</td>
</tr>
<tr>
<td>catalytic stove³,⁴</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation w/fireplace⁵,⁷</td>
<td>4,307</td>
<td>42,600</td>
<td>4,182,500</td>
</tr>
<tr>
<td>Recreation w/Phase II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>catalytic stove⁶,⁸</td>
<td>2,154</td>
<td>10,000</td>
<td>64,500</td>
</tr>
<tr>
<td>Recreation w/Phase II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>non-catalytic stove⁷,⁸</td>
<td>2,154</td>
<td>9,000</td>
<td>86,600</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>88,300</td>
<td>4,506,900</td>
</tr>
</tbody>
</table>

Emission Rates (lbs) Per Cord Of Wood Burned

<table>
<thead>
<tr>
<th></th>
<th>Particulates</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fireplaces</td>
<td>34.6</td>
<td>3398.8</td>
</tr>
<tr>
<td>Phase II Catalytic stoves</td>
<td>16.2</td>
<td>104.8</td>
</tr>
<tr>
<td>Phase II Non-catalytic stoves</td>
<td>14.6</td>
<td>140.8</td>
</tr>
</tbody>
</table>

¹ Based on 4618 single-family and 4995 multi-family residential dwelling units.
² du = dwelling units
³ 25 percent of homes will rely on wood burning, catalytic stoves as a heat source.
⁴ Assumed to burn one cord of wood per year.
⁵ 50 percent of homes will use recreational fireplaces for recreational wood burning.
⁶ 25 percent of homes will use catalytic stoves for recreational wood burning.
⁷ 25 percent of homes will use non-catalytic stoves for recreational wood burning.
⁸ Annual emissions from recreational wood use equal 2/7th of the full-time emission factors.
The following mitigation measure would reduce operational emissions.

Mitigation Measure 3.2.4-3

Each developer is responsible prior to Final Map approval for developing tree planting programs, improving the thermal integrity of buildings, and reducing the thermal load with automated time clocks or occupant sensors, and landscaping with native drought-resistant species to reduce water consumption and to provide passive solar benefits. Developers shall only install gas-burning (or any other clean fuel burning) fireplaces in new Southwest Area Plan residential dwellings. New fireplaces for existing residential dwellings in the Southwest Area shall only be gas-burning (or any other clean fuel burning) fireplaces.

Impact 3.2.4-4

The Southwest Area Plan and Infrastructure development would result in construction and operational toxic air emissions. This is considered to be a potentially significant impact. (PS)

The Southwest Area Plan development would result in toxic air contaminants (TACs) being generated during construction and operation. The twenty-five roadway Infrastructure improvements would result in TACs only being generated during construction. Both construction workers and residents could be effected by TACs. During construction, TACs would be emitted during painting, paving, demolition, and various construction activities. The primary pollutants of concern from asphalt and asphalt paving operations are volatile organic compounds (VOC). VOCs are emitted from the equipment used to apply the asphalt product and from the road surface. The largest source of emissions is the road itself. Of the three types of asphalts, the major source of VOC is cutback asphalt. VOC emissions from cutback asphalt result from the evaporation of the petroleum distillate solvent used to liquify the asphalt cement. Depending on the type of cure associated with the cutback, 75 percent of the VOCs could be emitted during the first day. No control devices are employed to reduce evaporative emissions from cutback asphalts. Asphalt emulsions are typically used in place of cutback asphalts to eliminate VOC emissions.

During the operational portion of the Southwest Area Plan development, TACs would be produced by motor vehicles, lawn mowers, paints, paint thinners, and air conditioning units. Operational use of the Area Plan is not yet specific enough to accurately approximate on-site TACs emissions and off-site TACs concentrations, but the quantities expected to be generated typical for a non-industrial suburban area is expected to be below the one-in-a-million cancer risk significance level.
Construction TACs could potentially be above the one-in-a-million cancer risk due to the variety of chemicals and compounds used in home building, and road and utility construction. Construction workers would be at a greater risk than adjacent or nearby residents due to their proximity to the chemicals daily. This impact is considered to be a potentially significant impact.

The following mitigation measure could reduce the severity of the impact to an insignificant level.

**Mitigation Measure 3.2.4-4**

The potential air quality impacts from toxic air containments emissions from construction equipment and operations would be reduced with compliance with the Bay Area Air Quality Management District air pollution control strategies. Construction firms would be contracted to post signs of possible health risk during construction. The developer is responsible for compliance with the Bay Area AQMD rule regarding cutback and emulsified asphalt paving materials. (I)

**Impact 3.2.4-5**

Implementation of the proposed Bellevue/U.S. 101 Interchange and Fulton/Wright/State Highway 12 Interchange infrastructure improvements would result in general improvement of the regional air quality. This is a beneficial impact. (E)

The two interchange improvements are located in an air quality non-attainment area which has transportation control measures (TCMs) in the State Implementation Plan (SIP). The two projects will impact air quality at both a regional and local level. The overall project impact on regional air quality is addressed by MTC as part of the TIP conformity analysis, which indicates that the project will contribute to the general improvement of air quality in the region by conforming with the SIP. Vehicular emissions associated with the two interchange infrastructure improvements would result in better traffic flow and thus decreased vehicular emissions. This impact is considered to be beneficial impact.

**Mitigation Measure 3.2.4-5**

None required.
PROPOSED PROJECTS

SETTING

The Southwest Area Plan's air quality setting section discusses applicable federal, state, district, and city criteria pollutant and toxic air contaminants regulatory background information. The Southwest Area Plan's setting section also discusses the appropriate climate and existing air quality for all thirty-five proposed projects.

IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology associated with the Proposed Projects is the same as what was presented for the Southwest Area Plan.

Impact 3.2.4-6

The thirty-five Proposed Projects could result in construction-related emissions which could exceed federal and/or State air quality standards. This is considered to be a short term and potentially significant impact. (PS)

Construction activities would temporarily cause increases in air pollutant emissions around the planned improvements similar in magnitude to the impacts discussed in 3.2.4-1. These activities have a potential for exceeding state and federal air quality standard at nearby and adjacent residents, the school, and businesses. Earthmoving, materials handling, stationary, and impact equipment and vehicles generate large quantities of dust and other air pollutants during clearing, excavation, grading, roadway and utility construction operations associated with the proposed project.

The following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.4-6

Implement Mitigation Measure 3.2.4-1. [I]
Impact 3.2.4-7

The development of the thirty-five Proposed Projects would result in cumulative increases in CO concentrations at intersections. This is considered to be an insignificant impact. (I)

The thirty-five Proposed Projects would result in increases of CO at intersections. The air pollutants associated with the development of the thirty-five Proposed Projects would result lower concentrations then those presented in Impact 3.2.4-2 for both the Year 2010 Plus Plan Without and With Traffic Mitigation. This is because the thirty-five Proposed Projects are a subset of potential development in the Southwest Area. Determination of significance of this impact is qualitative since traffic information for calculation of CO concentration was not available. Since, there are no exceedances of the California 1-hour or 8-hour CO standard at any of the analyzed intersections for both the Southwest Area Plan. Then, there should not be any exceedances of the California 1-hour or 8-hour CO standard for the thirty-five Proposed Projects. This impact is considered insignificant.

Mitigation Measure 3.2.4-7

None required.

Impact 3.2.4-8

Thirty-four of the thirty-five Proposed Projects would result in vehicular, home heating, home cooling, and wood burning emissions. This is considered to be a potentially significant impact. (PS)

The thirty-four proposed projects would result in the increase of total organic gases, carbon monoxide, nitrogen oxides, PM$_{10}$, and sulfur oxides emissions in Santa Rosa and the air basin due to vehicular, home heating, home cooling, and wood burning. Project #33, the Bellevue Interchange, will not result in home heating, home cooling, and wood burning emissions. Vehicular emissions associated with the Bellevue Interchange would result in better traffic flow and thus decreased vehicular emissions.

The thirty-four of the thirty-five proposed projects combined would generate approximately 846 pounds per day of total organic gases, 10,409 pounds per day of carbon monoxide, 1,309 pounds per day of nitrogen oxides, 246 pounds per day of PM$_{10}$, and 140 pounds per day of sulfur oxides.
vehicular emissions in the year 2010. Table 3.2.4-4 presents the vehicular emissions produced by each of the thirty-five projects for the year 2010. These emissions for the year 2010 would represent over 1% of the carbon monoxide, nitrogen oxides, PM$_{10}$, and sulfur oxides produced by vehicles in the county.

The thirty-four proposed projects would also increase unburnt combustibles emissions, which includes carbon monoxide, gaseous organics and particulate matter (i.e., smoke). Significant emissions are produced because fireplaces are inefficient combustion devices. The high, uncontrolled excess air rates and, especially, the absence of any sort of secondary combustion contribute to the high emissions. In addition, lesser amounts of nitrogen oxides, sulfur oxides, polycyclic organic material, which includes carcinogens such as benzo(a)pyrene (BaP), and creosote are important components of wood smoke. Wood burning emissions also vary due to the type of wood, moisture content, and the rate at which the wood burns.

Fireplaces emit more emissions per cord of wood than Phase II catalytic or non-catalytic stoves. None of the three wood burning methods are as clean as natural gas combustion or liquefied petroleum gas combustion. The new federal wood stove emission standards require that only "clean burning" Phase II devices be installed in new residences. Table 3.2.4-5 presents estimated particulate and CO emissions from these uses. Wood burning emissions could result in an estimated 24.8 tons per year of particulate and 1,239 tons per year of carbon monoxide emissions.$^{14}$

Home space heating, cooking and water heating emissions are small in comparison to wood burning emissions. Approximately 2.4 tons of CO and 0.4 tons of particulates would be emitted annually. Home cooling emissions are produced indirectly through increased electrical usage by air conditioners.

Electricity generation does produce CO and PM$_{10}$ emissions. Annual emissions produced by home cooling are not calculated due to the unknown energy efficiency of the proposed building and the type of air conditioner.

In conjunction with cumulative development, the Southwest Area Plan produces additional air pollutants reducing the ability of the Bay Area AQMD to comply with the California Clean Air Act. The following mitigation measure would reduce operational emissions.
## TABLE 3.2.4-4

PROJECTED VEHICLE EMISSIONS FOR THE YEAR 2010

<table>
<thead>
<tr>
<th>PROPOSED PROJECT</th>
<th>TOG (lbs/day)</th>
<th>CO (lbs/day)</th>
<th>NO(_x) (lbs/day)</th>
<th>PM(_{10}) (lbs/day)</th>
<th>SO(_x) (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Santa Rosa #1</td>
<td>3.4</td>
<td>42.7</td>
<td>5.0</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>SW Santa Rosa #2</td>
<td>5.1</td>
<td>64.1</td>
<td>7.5</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>SW Santa Rosa #3</td>
<td>4.3</td>
<td>54.3</td>
<td>6.3</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>SW Santa Rosa #4</td>
<td>7.9</td>
<td>100.1</td>
<td>11.7</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>SW Santa Rosa #5</td>
<td>19.7</td>
<td>246.6</td>
<td>29.7</td>
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<tr>
<td>SW Santa Rosa #6</td>
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<td>2.3</td>
<td>28.5</td>
<td>3.3</td>
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<td>0.4</td>
</tr>
<tr>
<td>SW Santa Rosa #9</td>
<td>68.6</td>
<td>852.9</td>
<td>104.3</td>
<td>14.8</td>
<td>11.1</td>
</tr>
<tr>
<td>SW Santa Rosa #10</td>
<td>35.4</td>
<td>421.0</td>
<td>57.8</td>
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<td>6.2</td>
</tr>
<tr>
<td>SW Santa Rosa #11</td>
<td>55.3</td>
<td>695.9</td>
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<td>SW Santa Rosa #12</td>
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<td>20.9</td>
<td>2.9</td>
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<td>0.3</td>
</tr>
<tr>
<td>SW Santa Rosa #13</td>
<td>1.4</td>
<td>18.2</td>
<td>2.1</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>SW Santa Rosa #14</td>
<td>7.7</td>
<td>98.0</td>
<td>11.4</td>
<td>1.0</td>
<td>1.2</td>
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<td>SW Santa Rosa #15</td>
<td>8.6</td>
<td>108.7</td>
<td>12.6</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>SW Santa Rosa #16</td>
<td>23.4</td>
<td>296.4</td>
<td>34.5</td>
<td>3.1</td>
<td>3.7</td>
</tr>
<tr>
<td>SW Santa Rosa #17</td>
<td>2.8</td>
<td>34.9</td>
<td>4.1</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>SW Santa Rosa #18</td>
<td>10.8</td>
<td>137.2</td>
<td>15.9</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>SW Santa Rosa #19</td>
<td>4.4</td>
<td>55.2</td>
<td>6.4</td>
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<td>0.7</td>
</tr>
<tr>
<td>SW Santa Rosa #20</td>
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<td>181.7</td>
<td>21.1</td>
<td>1.9</td>
<td>2.3</td>
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<tr>
<td>SW Santa Rosa #21</td>
<td>10.5</td>
<td>132.9</td>
<td>15.5</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>SW Santa Rosa #22</td>
<td>72.0</td>
<td>892.1</td>
<td>110.0</td>
<td>16.4</td>
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<td>SW Santa Rosa #23</td>
<td>4.8</td>
<td>60.6</td>
<td>7.0</td>
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<td>0.8</td>
</tr>
<tr>
<td>SW Santa Rosa #24</td>
<td>3.1</td>
<td>39.2</td>
<td>4.6</td>
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</tr>
<tr>
<td>SW Santa Rosa #25</td>
<td>6.6</td>
<td>83.7</td>
<td>9.7</td>
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</tr>
<tr>
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<td>30.4</td>
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<td>3.2</td>
</tr>
<tr>
<td>SW Santa Rosa #27</td>
<td>12.7</td>
<td>160.3</td>
<td>18.6</td>
<td>1.7</td>
<td>2.0</td>
</tr>
<tr>
<td>SW Santa Rosa #28</td>
<td>5.1</td>
<td>64.1</td>
<td>7.5</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>SW Santa Rosa #29</td>
<td>179.3</td>
<td>2138.4</td>
<td>291.6</td>
<td>70.7</td>
<td>31.2</td>
</tr>
<tr>
<td>SW Santa Rosa #30</td>
<td>219.3</td>
<td>2697.6</td>
<td>339.5</td>
<td>58.3</td>
<td>36.3</td>
</tr>
<tr>
<td>SW Santa Rosa #31</td>
<td>6.8</td>
<td>86.4</td>
<td>10.1</td>
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<td>1.1</td>
</tr>
<tr>
<td>SW Santa Rosa #32</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>SW Santa Rosa #33</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>SW Santa Rosa #34</td>
<td>5.2</td>
<td>58.8</td>
<td>9.0</td>
<td>11.7</td>
<td>1.0</td>
</tr>
<tr>
<td>SW Santa Rosa #35</td>
<td>9.8</td>
<td>111.1</td>
<td>17.1</td>
<td>22.0</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>TOTAL (lbs/day)</strong></td>
<td>845.8</td>
<td>10409.0</td>
<td>1308.6</td>
<td>246.2</td>
<td>139.9</td>
</tr>
<tr>
<td><strong>TOTAL (tons/year)</strong></td>
<td>0.42</td>
<td>5.20</td>
<td>0.65</td>
<td>0.12</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Note: Project #32 was combined with Project #26.

<table>
<thead>
<tr>
<th>Type</th>
<th>DU²</th>
<th>Lbs. Particulate</th>
<th>Lbs. CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time w/Phase II catalytic stove³,⁴</td>
<td>980</td>
<td>15,900</td>
<td>102,700</td>
</tr>
<tr>
<td>Recreation w/fireplace⁵,⁸</td>
<td>2,361</td>
<td>23,300</td>
<td>2,292,200</td>
</tr>
<tr>
<td>Recreation w/Phase II catalytic stove⁶,⁸</td>
<td>1,180</td>
<td>5,500</td>
<td>35,300</td>
</tr>
<tr>
<td>Recreation w/Phase II non-catalytic stove⁷,⁸</td>
<td>1,180</td>
<td>4,900</td>
<td>47,500</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>49,600</td>
<td>2,477,800</td>
</tr>
</tbody>
</table>

Emission Rates (lbs) Per Cord Of Wood Burned

<table>
<thead>
<tr>
<th>Particulates</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fireplaces</td>
<td>34.6</td>
</tr>
<tr>
<td>Phase II Catalytic stoves</td>
<td>16.2</td>
</tr>
<tr>
<td>Phase II Non-catalytic stoves</td>
<td>14.6</td>
</tr>
</tbody>
</table>

¹ Based on 3121 single-family and 2000 multi-family residential dwelling units.
² du = dwelling units
³ 25 percent of homes will rely on wood burning, catalytic stoves as a heat source.
⁴ Assumed to burn one cord of wood per year.
⁵ 50 percent of homes will use recreational fireplaces for recreational wood burning.
⁶ 25 percent of homes will use catalytic stoves for recreational wood burning.
⁷ 25 percent of homes will use non-catalytic stoves for recreational wood burning.
⁸ Annual emissions from recreational wood use equal 2/7th of the full-time emission factors.
Mitigation Measure 3.2.4-8

Implement Mitigation Measure 3.2.4-3. (I)

Impact 3.2.4-9

The thirty-five Proposed Projects would result in construction and operational toxic air emissions. This is considered to be a potentially significant impact. (PS)

The thirty-five proposed projects would result in similar toxic emissions as those discussed in Impact 3.2.4-4. The thirty-five proposed projects would result in toxic air contaminants (TACs) being generated during construction and operation. Both construction workers and residents could be effected by TACs. During construction, TACs would be emitted during painting, paving, demolition, and various construction activities. During the operational portion of thirty-four of the thirty-five proposed projects developed, TACs would be produced by motor vehicles, lawn mowers, paints, paint thinners, and air conditioning units. Quantities expected to be generated typical for a non-industrial suburban area is expected to be below the one-in-a-million cancer risk significance level. Construction workers would be at a greater risk than adjacent or nearby residents due to their proximity to the chemicals daily. Construction TACs could potentially be above the one-in-a-million cancer risk due to the variety of chemicals and compounds used in home building, and road and utility construction. This impact is considered to be a potentially significant impact. The following mitigation measure would reduce the severity of the impact to an insignificant level.

Mitigation Measure 3.2.4-9

Implement Mitigation Measure 3.2.4-4.

REFERENCES


1. Acceptable concentration levels for some pollutants are chosen after careful review of available data on health effects. Pollutants subject to federal ambient standards are referred to as "criteria pollutants" because the EPA publishes criteria documents to justify the choice of standards.

2. These policies are codified in BAAQMD Regulations 2, Rules 2-1-301 and 2-1-302, which state that new sources of toxic air contaminants are not exempt from obtaining an Authority to Construct and Permit to Operate if they emit air toxics in a quantity determined to be appropriate for review by the Air Pollution Control Officer.


4. The BAAQMD's risk management policy states that District staff will recommend denial of project permits if:
   - The project has a estimated, worst-case, increased cancer risk of ten-in-one-million.
   - The project has a estimated, worst-case, increased cancer risk of one-in-one-million, and toxic BACT has not been applied.
   - Ground-level concentrations of pollutants emitted by the project do not exceed relevant non-cancer effect criteria.

5. BAAQMD, District Staff Risk Management Procedure, May 9, 1991. The Air Pollution Control Officer makes the determination.


7. An inversion is a condition under which warm air aloft limits upward movement of pollutants contained in a colder layer of air near the surface.


3.2.5 NOISE

INTRODUCTION

The subsections below entitled Southwest Area Plan and Proposed Projects provide discussions on:
1) acoustic fundamentals, 2) State and city noise guidelines and policies, 3) the existing noise sources
and receivers, 4) the modeled existing noise levels, 5) noise impacts of the Southwest Area Plan, and
the thirty-five Proposed Projects, and 6) mitigation measures which may be employed to reduce
potential noise impacts.

SOUTHWEST AREA PLAN

SETTING

Acoustic Fundamentals

Sound is a mechanical form of radiant energy which is transmitted by pressure waves in the air. It
is characterized by two parameters: amplitude and frequency.

Amplitude is the difference between ambient air pressure and the peak pressure of the sound wave.
Amplitude is measured in decibels (dB) on a logarithmic rather than a linear scale. As a
consequence, the pressure difference in a 10 dB sound is 10 times that of a 0 Db sound, a 20 dB
sound is 100 times the pressure difference, a 30 dB sound 1,000 times, and so on. Another feature
of the decibel scale is the way in which sound amplitudes from multiple sources add. A 65 dB point
source of sound, say a truck, when joined by another similar source results in a sound amplitude of
68 dB, not 130 dB, that is to say that doubling the source strength increases the sound pressure by
3 dB. Amplitude is interpreted by the ear as corresponding to different degrees of loudness.
Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of
loudness and establish 3 dB change in amplitude is the minimum audible difference for the average
person.¹

Frequency is the number of fluctuations of the pressure wave per second. The unit of frequency is
the Hertz (abbreviated Hz; one Hz equals one cycle per second). The human ear is not equally
sensitive to sound of all frequencies. Sound waves below 16 Hz or above 20,000 Hz cannot be heard
at all and the ear is more sensitive to sound in the higher portion of this range than in the lower.
To approximate this sensitivity, environmental sound is usually measured in A-weighted decibels
(dBA). On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. Three most commonly used are $L_{eq}$, $L_{dn}$, and CNEL. The energy equivalent noise level, $L_{eq}$, is a measure of the average energy content (intensity) of noise over any given period of time. The day-night average noise level, $L_{dn}$, is the 24-hour average of the noise intensity, with a 10 dBA "penalty" added for nighttime noise (10:00 PM to 7:00 AM) to account for the greater sensitivity to noise during this period.² CNEL, the community equivalent noise level, is similar to $L_{dn}$, but also adds a 5 dBA penalty to evening noise (7:00 PM to 10:00 PM).

The human response to environmental noise, such as planes, trains and automobiles, is subjective and varies considerably from individual to individual. Noise in the community has often been cited as being a health problem, not in terms of actual physiological damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation, tasks demanding concentration or coordination, and at the highest intensity levels, to hearing loss. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels. Listed in Table 3.2.5-1 are several examples of the noise levels associated with common situations. Table 3.2.5-2 has a summary of the public health effects of community noise and the noise levels at which they can occur.

**Regulatory Background**

**State of California.** In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various County governments, and most municipalities in the State have established standards and ordinances to control noise. The California Department of Health Services' (DHS) Office of Noise Control has studied the correlation of noise levels and their effects on different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land uses.
### TABLE 3.2.5-1

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND IN THE INDUSTRY

<table>
<thead>
<tr>
<th>A-Weighted At a Given Distance From Noise Source</th>
<th>Sound Level in Decibels</th>
<th>Noise Environments</th>
<th>Subjective Impression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Defense Siren (100')</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jet Takeoff (200')</td>
<td>130</td>
<td></td>
<td>Pain Threshold</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>Rock Music Concert</td>
<td></td>
</tr>
<tr>
<td>Pile Driver (50')</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance Siren (100')</td>
<td>100</td>
<td></td>
<td>Very Loud</td>
</tr>
<tr>
<td>Freight Cars (50')</td>
<td>90</td>
<td>Boiler Room</td>
<td></td>
</tr>
<tr>
<td>Pneumatic Drill (50')</td>
<td>80</td>
<td>Printing Press Plant</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Kitchen with Garbage Disposal Running</td>
<td></td>
</tr>
<tr>
<td>Vacuum Cleaner (10')</td>
<td>70</td>
<td></td>
<td>Moderately Loud</td>
</tr>
<tr>
<td>Department Store</td>
<td>60</td>
<td>Data Processing Center</td>
<td></td>
</tr>
<tr>
<td>Light Traffic (100')</td>
<td>50</td>
<td>Private Business Office</td>
<td></td>
</tr>
<tr>
<td>Large Transformer (200')</td>
<td>40</td>
<td></td>
<td>Quiet</td>
</tr>
<tr>
<td>Soft Whisper (5')</td>
<td>30</td>
<td>Quiet Bedroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Recording Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td>Threshold of Hearing</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>EFFECT</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Noise as a Stressor</td>
<td>85 dBA (long term)</td>
</tr>
<tr>
<td>Increase incidence of high blood pressure that leads to increased risk of cardiovascular disease</td>
<td></td>
</tr>
<tr>
<td>Vasoconstriction begins that can lead to high blood pressure</td>
<td>70 dBA</td>
</tr>
<tr>
<td>II. Adverse Effect on Task Performance</td>
<td>90 dBA</td>
</tr>
<tr>
<td>Steady noise</td>
<td></td>
</tr>
<tr>
<td>Irregular noise</td>
<td>All levels</td>
</tr>
<tr>
<td>III. Prenatal and Childhood Effects</td>
<td>70 dBA</td>
</tr>
<tr>
<td>Increased incidence of low birth weight</td>
<td></td>
</tr>
<tr>
<td>High frequency hearing loss in fetuses</td>
<td>85 dBA</td>
</tr>
<tr>
<td>Increased blood pressure in children</td>
<td>75 dBA</td>
</tr>
<tr>
<td>Decreased reading ability, auditory discrimination or language development</td>
<td>65 dBA (all long term)</td>
</tr>
<tr>
<td>IV. Social Behavior and Mental Health</td>
<td>80 dBA</td>
</tr>
<tr>
<td>Decreased helpfulness and social interaction</td>
<td></td>
</tr>
<tr>
<td>Increased incidence of mental disorders</td>
<td>90 dBA</td>
</tr>
<tr>
<td>V. Sleep Disturbance</td>
<td>35 dBA</td>
</tr>
<tr>
<td>VI. Speech Interference</td>
<td>65 dBA</td>
</tr>
<tr>
<td>Less than 5 feet between conversants</td>
<td></td>
</tr>
<tr>
<td>5 to 12 feet between conversants</td>
<td>60 dBA</td>
</tr>
<tr>
<td>Over 12 feet between conversants</td>
<td>55 dBA</td>
</tr>
<tr>
<td>VII. Recreational Hearing Loss</td>
<td>85 dBA (long term)</td>
</tr>
</tbody>
</table>

These four categories are represented in the following Figure 3.2.5-1, titled "Land Use Compatibility For Community Noise Environments". Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the "conditionally acceptable" range, some mitigation of exposure, as established by an acoustic study, would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it can not be mitigated.

As for applicable standards governing interior noise levels, Title 24 of the California Administrative Code\(^3\) establishes standards governing interior noise levels that apply to all new multifamily residential units in California. These standards require that acoustical studies be performed prior to construction at building locations where the existing \(L_{dn}\) exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum \(L_{dn}\) noise levels to 45 dBA in any inhabitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an \(L_{dn}\) of 45 as an upper limit on interior noise in all residential units. The U.S. Department of Housing and Urban Development (HUD) has set an \(L_{dn}\) of 45 as its goal for interior noise in residential units built with HUD funding. Standard residential construction for single family units typically attenuate noise by 20 decibels, therefore the \(L_{dn}\) should not exceed 65, in order for the California interior standards to be met.

**City of Santa Rosa.** The City of Santa Rosa General Plan\(^4\) has one goal and two implementation actions and objectives which address noise-sensitive land uses, and provides standards and programs to avoid noise-related impacts from existing uses and new development. Figure 3.2.5-2 shows acceptable and unacceptable noise levels for various land uses. The General Plan noise goal, implementation actions and objectives, and relevant noise programs are presented:

**Twenty Year Goal**

N-1 To reduce nuisance from stationary and moving sources in order to protect the health and comfort of people living, working and/or visiting in Santa Rosa.

**Implementation Actions and Objectives**

N-1a Apply a comprehensive program of noise prevention, using existing standards and procedures. Year: Ongoing. Entity: Department of Community Development.
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure Ldn or CNEL, dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Residential: Low-Density Single Family, Duplex, Mobile Homes</td>
<td></td>
</tr>
<tr>
<td>Residential: Multiple Family</td>
<td></td>
</tr>
<tr>
<td>Transient Lodging: Motels, Hotels</td>
<td></td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td></td>
</tr>
<tr>
<td>Auditoriums, Concert Halls, Amphitheaters</td>
<td></td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td></td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td></td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td></td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td></td>
</tr>
<tr>
<td>Industrial, Manufacturing, Utilities, Agriculture</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally Acceptable</td>
<td>❌</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditionally Acceptable</td>
<td>❌</td>
<td>❌</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally Unacceptable</td>
<td></td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Land Use Discouraged</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
</tbody>
</table>

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

New construction or development should generally not be undertaken.

Source: State of California General Plan Guidelines, 1990
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure</th>
<th>Ldn or CNEL, dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Lodging: Motels, Hotels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditoriums, Concert Halls, Amphitheaters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial, Manufacturing, Utilities, Agriculture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **NORMALLY ACCEPTABLE**: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

- **CONDITIONALLY ACCEPTABLE**: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.

- **NORMALLY UNACCEPTABLE**: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

- **LAND USE DISCOURAGED**: New construction or development clearly not be undertaken.

Program

2. Require mitigations, where necessary, to meet stipulated noise standards, including the reduction of $L_{dn}$/CNEL to 45 in habitable rooms and to 60 $L_{dn}$/CNEL in private and shared facilities.

5. Recognize that noise standards may sometimes be exceeded, especially in instances where homes front arterial roadways, and that noise may be a trade-off for mitigation which could reduce the quality of life and develop an undesirable visual pattern of soundwalls on arterial roadways.

8. Utilize buffers other than sound walls, where practicable, in order to avoid sterile streetscapes (Landscape earth berms and setbacks are alternatives to walls. Berms can be used in conjunction with walls and where walls are used, they can be made more attractive with well designed and maintained landscaping).

Implementation Actions and Objectives

N-1b Cooperate with pertinent City of Santa Rosa, County of Sonoma, and State of California agencies, as well as private entities, to reduce noise from significant sources. Year: Ongoing. Entity: Department of Community Development.

Existing Noise Sources and Receivers

Motor vehicle traffic is the most important noise source contributing to the existing noise environment. All of the Area Plan is exposed to traffic background noise from Highway 101, State Route 12 and major arterials within Santa Rosa and Sonoma County. Highway 101, which is adjacent to the eastern boundary of the Area Plan, is the loudest noise source and it is adjacent to one project and up to approximately 15,000 feet to the farthest projects. State Route 12, which is adjacent to the northern boundary of the Area Plan, is also adjacent to a few projects and approximately 15,000 feet from the farthest project. The Area Plan is located adjacent to low density rural residential areas to the south and west which could generate various farm equipment and animal noises. The Area Plan has a railway transversing its east side. The Area Plan is presently only minimally effected by train and airplane noise. The Northwest Pacific Railroad line is located in the eastern portion of the Plan Area. There is approximately one train per day in the vicinity of the Plan Area. The line transversing the Plan Area has a 60 $L_{dn}$ contour approximately 70 feet from the railway.
Proposed infrastructure improvements are adjacent to existing and/or planned residential areas. Whether there are adjacent or nearby noise sensitive areas to this project depends on when and what order the infrastructure is built.

Modeled Existing Noise Levels. The model SOUND32 was used to calculate the distance to the 60, 65, and 70 L_{dn} contours for 30 roadway links, incorporating data from Dowling Associates and Caltrans. Discussion of the model and assumptions used are presented below in the method section. Table 3.2.5-3 presents the L_{dn} at 100 feet from the centerline of roadway and the distances from the centerline to the 60, 65, and 70 L_{dn} contours. The existing noise levels range from 53 L_{dn} at 100 feet from the centerline of Burbank Avenue, between Sebastopol Road and Hearn Avenue and 76 L_{dn} at 100 feet from the centerline of U.S. 101, between State Route 12 and Corby.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The City of Santa Rosa, state, and federal noise ordinances, policies, and statutes were evaluated to produce standards of significance. Construction impacts on existing or planned residential and multi-residential areas are considered significant if the noise level is greater than the levels stated in the Noise Ordinance during non-exempt hours. Traffic impacts on existing residential, multi-residential, and school areas are considered significant if the impact is 60 L_{dn} or greater and the noise level increases 1 dBA or more. Traffic impacts on existing playgrounds and neighborhood parks are considered significant if the impact is 70 L_{dn} or greater and the noise level increases 1 dBA or more. Traffic impacts on existing office buildings and commercial areas are considered significant if the impact is 65 L_{dn} or greater and the noise level increases 1 dBA or more. Traffic and rail impacts on proposed residential, multi-residential, and school areas are considered significant if the impact is 60 L_{dn} or greater. Traffic and rail impacts on proposed playgrounds and neighborhood parks are considered significant if the impact is 70 L_{dn} or greater. Traffic and rail impacts on proposed office buildings and business commercial areas are considered significant if the impact is 65 L_{dn} or greater. Interior noise levels are considered significant if the noise level is 45 L_{dn} or greater.

Methods

Three types of quantitative noise analyses are made in this DEIR. These involve, traffic noise, train noise, and construction noise.
### TABLE 3.2.5-3
MODELED EXISTING SCENARIO $L_{dn}$ NOISE LEVELS AT RECEPTORS 100 FEET FROM THE CENTERLINE OF THE ROADWAY AND DISTANCE TO 60, 65, AND 70 $L_{dn}$ NOISE CONTOUR IN FEET

<table>
<thead>
<tr>
<th>Locations</th>
<th>$L_{dn}$ at 100 ft.</th>
<th>Distance to Noise Contour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>1. Sebastopol/ Wright &amp; Corp Ctr Pky</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>2. Sebastopol/ Corp Ctr Pky &amp; Lombard</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>3. Sebastopol/ Lombardi &amp; Stony Point</td>
<td>65</td>
<td>46</td>
</tr>
<tr>
<td>4. Sebastopol/ Stony Point &amp; Burbank</td>
<td>64</td>
<td>38</td>
</tr>
<tr>
<td>5. Sebastopol/ Burbank &amp; West</td>
<td>64</td>
<td>39</td>
</tr>
<tr>
<td>6. Sebastopol/ West &amp; Dutton</td>
<td>65</td>
<td>49</td>
</tr>
<tr>
<td>7. Sebastopol/ West of Dutton</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>8. NorthPoint/ Corp Ctr &amp; Stony Point</td>
<td>60</td>
<td>17</td>
</tr>
<tr>
<td>9. Hearn/ Stony Point &amp; S Dutton</td>
<td>61</td>
<td>25</td>
</tr>
<tr>
<td>10. Hearn/ S Dutton &amp; Dutton</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>11. Hearn/ Dutton &amp; Dowd</td>
<td>63</td>
<td>36</td>
</tr>
<tr>
<td>12. Hearn/ Dowd &amp; Corby</td>
<td>65</td>
<td>45</td>
</tr>
<tr>
<td>13. Corp Ctr Pky/ Sebastopol &amp; North Point</td>
<td>60</td>
<td>NA</td>
</tr>
<tr>
<td>14. Stony Point/ SR12 &amp; Sebastopol</td>
<td>68</td>
<td>78</td>
</tr>
<tr>
<td>15. Stony Point/ Sebastopol &amp; North Point</td>
<td>65</td>
<td>48</td>
</tr>
</tbody>
</table>
### TABLE 3.2.5-3 (Continued)

**Modeled Existing Scenario \( L_{dn} \) Noise Levels at Receptors 100 Feet from the Centerline of the Roadway and Distance to 60, 65, and 70 \( L_{dn} \) Noise Contour in Feet**

<table>
<thead>
<tr>
<th>Locations</th>
<th>( L_{dn} ) at 100 ft.</th>
<th>Distance to Noise Contour</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Stony Point/</td>
<td>66</td>
<td>56 120 255</td>
</tr>
<tr>
<td>Northpoint &amp; Hearn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Stony Point/</td>
<td>65</td>
<td>43 94 200</td>
</tr>
<tr>
<td>Hearn &amp; Bellevue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Burbank/</td>
<td>53</td>
<td>NA NA 35</td>
</tr>
<tr>
<td>Sebastopol &amp; Hearn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. West/</td>
<td>58</td>
<td>NA 35 75</td>
</tr>
<tr>
<td>Sebastopol &amp; Hearn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Dutton/</td>
<td>66</td>
<td>51 110 235</td>
</tr>
<tr>
<td>SR12 &amp; Sebastopol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Dutton/</td>
<td>63</td>
<td>35 75 160</td>
</tr>
<tr>
<td>Sebastopol &amp; Barham</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Dutton/</td>
<td>60</td>
<td>19 49 105</td>
</tr>
<tr>
<td>Barham &amp; Hearn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Dutton/</td>
<td>56</td>
<td>NA 22 53</td>
</tr>
<tr>
<td>Hearn &amp; Bellevue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Mooreland/</td>
<td>58</td>
<td>NA 33 72</td>
</tr>
<tr>
<td>Bellevue &amp; Robles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. SR12/</td>
<td>72</td>
<td>125 265 555</td>
</tr>
<tr>
<td>Stony Point &amp; Dutton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. SR12/</td>
<td>73</td>
<td>150 315 660</td>
</tr>
<tr>
<td>Dutton &amp; US101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. US101/</td>
<td>76</td>
<td>255 535 1090</td>
</tr>
<tr>
<td>SR12 &amp; Corby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. US101/</td>
<td>76</td>
<td>245 510 1040</td>
</tr>
<tr>
<td>Corby &amp; Hearn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. US101/</td>
<td>76</td>
<td>230 485 1000</td>
</tr>
<tr>
<td>Hearn &amp; Bellevue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. US101/</td>
<td>76</td>
<td>230 485 1000</td>
</tr>
<tr>
<td>Bellevue &amp; Todd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.  
Traffic Noise Analysis. Traffic noise modeling was completed using the model SOUND32. SOUND32 is the computer model STAMINA, a Federal Highway Administration Level 2 Noise Prediction Model, modified by Caltrans with California vehicle noise emission levels. Traffic analysis calculated the $L_{dn}$ at 100 feet and the distance to the 60, 65, and 70 $L_{dn}$ noise contours from average daily traffic volumes. For modeling, a simplified flat terrain was assumed with a soft surface (4.5 decibel reduction per doubling of distance), and posted speed limits. No noise barriers were assumed to derive the worst case noise levels. Actual noise levels would be lower due to additional attenuation caused by buildings, vegetation, and elevated terrain. Vehicular mix was taken from the Sonoma County vehicular distribution data for the local roads. Vehicular mix for State Route 12 and Highway 101 was taken from Caltrans. Analysis were performed for the Existing, and Year 2010 Plus Project scenarios. The $L_{dn}$ at 100 feet from the centerline is used to determine the increase in project impacts. The distances to $L_{dn}$ contours is used to locate the extent of the noise impacts. Analysis were made using one roadway link for each calculation. To calculate noise levels near two roadways, the noise levels need to be added using noise methodology.

Train Noise Analysis. Railroad noise contours are calculated using methodology developed by Jack Swing. This method presents a simplified procedure for the estimation of noise impact created by on-line railroad operations in terms of $L_{dn}$ noise contours. The input to this procedure are the number of daytime and nighttime operations. These numbers are used to calculate the $L_{dn}$.

Construction Noise Analysis. Estimation of the noise levels that would occur adjacent to a construction site is difficult due to the variations and changes in the number and type of construction equipment used. Construction noise is analyzed qualitatively. However, noise levels can be estimated from heavy duty mobile and stationary construction equipment emissions presented in Table 3.2.5-4 with the assistance of the highway construction noise computer model HICNOM. The highway construction model HICNOM was used. HICNOM is a Federal Highway Administration sponsored model. The program models sources as points, lines or areas and includes noise barrier attenuation routines. The model was developed by William Bowly of Vanderbilt University and Louis Cohn of University of Louisville. The equipment modeled was one tractor, one grader, one loader, one backhoe and one truck all operating at the same time without feasible noise control and within an area of 28,600 square feet. The noise levels for the equipment used were taken from Table 3.2.5-4's column without noise control.
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Without Noise Control</th>
<th>With Feasible Noise Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthmoving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Loaders</td>
<td>79</td>
<td>75</td>
</tr>
<tr>
<td>Backhoes</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>Dozers</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Tractors</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Scrapers</td>
<td>88</td>
<td>80</td>
</tr>
<tr>
<td>Graders</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>Trucks</td>
<td>91</td>
<td>75</td>
</tr>
<tr>
<td>Pavers</td>
<td>89</td>
<td>80</td>
</tr>
<tr>
<td>Materials Handling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Mixers</td>
<td>85</td>
<td>75</td>
</tr>
<tr>
<td>Concrete Pumps</td>
<td>82</td>
<td>75</td>
</tr>
<tr>
<td>Cranes</td>
<td>83</td>
<td>75</td>
</tr>
<tr>
<td>Derricks</td>
<td>88</td>
<td>75</td>
</tr>
<tr>
<td>Stationary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps</td>
<td>76</td>
<td>75</td>
</tr>
<tr>
<td>Generators</td>
<td>78</td>
<td>75</td>
</tr>
<tr>
<td>Compressors</td>
<td>81</td>
<td>75</td>
</tr>
<tr>
<td>Impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File Drivers</td>
<td>101</td>
<td>95</td>
</tr>
<tr>
<td>Jack Hammers</td>
<td>88</td>
<td>75</td>
</tr>
<tr>
<td>Rock Drills</td>
<td>98</td>
<td>80</td>
</tr>
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<td>Pneumatic Tools</td>
<td>86</td>
<td>80</td>
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<td>Other</td>
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<td></td>
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<tr>
<td>Saws</td>
<td>78</td>
<td>75</td>
</tr>
<tr>
<td>Vibrators</td>
<td>76</td>
<td>75</td>
</tr>
</tbody>
</table>

1 Taken from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, prepared by Bolt, Beranek, and Newman for the U.S. Environmental Protection Agency, December 31, 1971.

2 Estimated levels obtainable by selecting quieter procedures or machines and implementing noise control features requiring no major redesign or extreme cost.
Impact 3.2.5-1

Development of the Southwest Area Plan and Infrastructure improvements would cause temporary increases in construction noise levels. This is considered to be short-term significant impact. (S)

Construction activities would temporarily increase noise levels in and around the Plan Area over the entire period of construction due to earthmoving, utility and general construction activities. These activities have a potential for disturbing residents, school children, and businesses. Earthmoving, materials handling, stationary, and impact equipment and vehicles generate noise during clearing, demolition (of the old air center runway), excavation, grading, roadway and utility construction operations associated with the proposed project. Infrastructure improvements along Bellevue Avenue, Burbank Avenue, Dutton Avenue, Fresno Avenue, Hearn Avenue, Ludwig Avenue, Moorland Avenue, Northpoint Parkway, Sebastopol Road, Stony Point Road, Todd Road, and Wright Road would impact existing residents along those roadways. Table 3.2.5-4 shows outdoor noise levels experienced from different pieces of equipment with and without feasible noise control.

Air compressors used on each project would be required to meet the sound level limits in the U.S. Environmental Protection Agency Portable Air Compressor Noise Emission Regulation (76 dBA at 23 feet). All portable compressors with rated capacities over 750 cubic feet per minute manufactured since July 1, 1978 must to comply with this standard.

Actual noise levels experienced at by residents would be generated by different types of equipment. Since at this time, the number, type, and location of equipment to be used during project construction is not known, it is not possible to accurately predict the noise level for residents, school children, or businesses. However, noise level estimates were made assuming one tractor, one grader, one loader, one backhoe and one truck all operating at the same time without feasible noise control and within an area of 28,600 square feet. The model HICNOM was used in the area source mode and noise levels were calculated for four locations 10, 50, 100 and 500 feet from the construction area. Calculated worst-case temporary noise levels of 90 dBA could be expected for receptors 10 feet from the construction area, of 86 dBA for receptors 50 feet from the construction area, of 83 dBA for receptors 100 feet from the construction area, and of 72 dBA for receptors 500 feet from the construction area. This is assuming that there is direct line-of-sight between the noise sources and the exterior receptor. Noise level for receptors inside buildings with the windows closed would be
15 to 20 dBA less. Implementation of the following mitigation measures would reduce this impact to an insignificant level.

**Mitigation Measure 3.2.5-1**

(a) To minimize construction noise impacts of nearby residents, limit construction hours to between 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on weekends for projects within 1,600 feet of inhabited dwelling unit(s). Any work outside of these hours should require a special permit from the City of Santa Rosa. There should be compelling reasons for permitting construction outside of the designated hours. (I)

(b) Construction equipment should be properly outfitted and maintained with noise reduction devices to minimize construction-generated noise. (I)

(c) The contractor should locate stationary noise sources away from residents and developed areas, and require use of acoustic shielding with such equipment when feasible and appropriate. (I)

Noise level estimates were made assuming the same construction vehicles within the same area with feasible noise controls. Noise levels were calculated for the same points. Calculated worst-case temporary noise levels of 79 dBA could be expected for receptors 10 feet from the construction area, of 75 dBA for receptors 50 feet from the construction area, of 72 dBA for receptors 100 feet from the construction area, and of 61 dBA for receptors 500 feet from the construction area.

**Impact 3.2.5-2**

Development of the Southwest Area Plan and Infrastructure improvements, in conjunction with cumulative traffic, would result in traffic noise impacts on the proposed Area Plan developments. This is considered to be a significant impact. (S)

The Southwest Area Plan residents at buildout would be exposed to exterior noise levels greater than 60 L_{dn}. Noise levels on Moorland Avenue, portions of Sebastopol Road, portions of Stony Point Road, and West Avenue would decrease below existing levels. While noise levels on Burbank Avenue, portion of Dutton Avenue, portions of Hearn Avenue, Northpoint Parkway, portions of Sebastopol Road, and portions of Stony Point Road would increase.

Traffic noise from forty-three of the forty-seven evaluated roadways in the year 2010 would produce exterior noise levels at or above 60 L_{dn} at 100 feet from the centerline of the roadway. Table 3.2.5-5
presents the $L_{dn}$ at 100 feet from the centerline of 47 roadways for the Year 2010 with Southwest Area Plan, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. For example, Area Plan residents between 1060 to 1100 feet from the centerline of U.S. 101 would be exposed to noise levels of 60 $L_{dn}$. Area Plan residents between 600 to 635 feet from the centerline of State Route 12 would be exposed to noise levels of 60 $L_{dn}$. Area Plan residents between 125 to 260 feet from the centerline of Hearn Avenue would be exposed to noise levels equal to 60 $L_{dn}$. Area Plan residents between 69 to 245 feet from Dutton Avenue’s centerline would be exposed to significant noise levels. Implementation of the following mitigation measure would reduce these exterior and interior noise level impacts to an *insignificant* level.

Mitigation Measure 3.2.5-2

The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southwest Area Plan to reduce year 2010 exterior noise levels on proposed residential and school land uses to 60 $L_{dn}$ or below, on proposed playgrounds and neighborhood park land uses to 70 $L_{dn}$ or below, and on proposed office buildings and commercial areas to 65 $L_{dn}$ or below. (1)

Setback distances from the roadway centerline to the 60, 65, and 70 $L_{dn}$ contours are provided in Table 3.2.5-5. Setback distances assume no additional attenuation caused by buildings, vegetation, and elevated terrain and a decibel reduction of 4.5 dBA per doubling of distance. Reducing exterior noise level to 60 $L_{dn}$ or below would reduce interior noise levels to 45 $L_{dn}$ or below since standard construction methods provide approximately 20 dBA of attenuation. Not all areas within residential, multi-residential, school, playgrounds, neighborhood parks, office buildings, and business commercial areas are considered sensitive to significant noise levels. For example, parking lots, driveways, and public sidewalks are not considered sensitive areas. Due to the planning level of this document, specifics necessary for determining sound wall and/or berm heights and locations necessary for reducing noise levels behind sound walls and/or berms cannot be calculated. Table 3.2.5-5 is provided as a guide for use in future project planning and locating buildings to avoid noise impacts associated with Area Plan buildout.

Impact 3.2.5-3

Development of the Southwest Area Plan and Infrastructure improvements, in conjunction with cumulative traffic, could result in traffic noise impacts on the existing Area Plan land uses. This is considered to be a *potentially significant impact*. (PS)
<table>
<thead>
<tr>
<th>Locations</th>
<th>2010 $L_{dn}$ at 100 ft.</th>
<th>Distance to Noise Contour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>1. Sebastopol/</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>Wright &amp; Corp Ctrl Pky</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sebastopol/</td>
<td>63</td>
<td>36</td>
</tr>
<tr>
<td>Corp Ctrl Pky &amp; Lombard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sebastopol/</td>
<td>63</td>
<td>35</td>
</tr>
<tr>
<td>Lombardi &amp; Stony Point</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sebastopol/</td>
<td>66</td>
<td>54</td>
</tr>
<tr>
<td>Stony Point &amp; Burbank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sebastopol/</td>
<td>66</td>
<td>54</td>
</tr>
<tr>
<td>Burbank &amp; West</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West &amp; Dutton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sebastopol/</td>
<td>64</td>
<td>41</td>
</tr>
<tr>
<td>West of Dutton</td>
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<td>9. Hearn/</td>
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<td>Hearn &amp; Bellevue</td>
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<td>Sebastopol &amp; Hearn</td>
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### TABLE 3.2.5-5 (Continued)

MODELED SOUTHWEST AREA PLAN YEAR 2010

$L_{dn}$ NOISE LEVELS AT RECEPTORS 100 FEET FROM

THE ROADWAY CENTERLINE AND DISTANCE TO 70, 65 AND 60 $L_{dn}$ NOISE CONTOURS IN FEET FROM ROADWAY CENTERLINE

<table>
<thead>
<tr>
<th>Locations</th>
<th>2010 $L_{dn}$ at 100 ft.</th>
<th>Distance to Noise Contour</th>
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<tbody>
<tr>
<td></td>
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<td>70</td>
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<tr>
<td>19. West/ Sebastopol &amp; Hearn</td>
<td>54</td>
<td>NA</td>
</tr>
<tr>
<td>20. Dutton/ SR12 &amp; Sebastopol</td>
<td>66</td>
<td>53</td>
</tr>
<tr>
<td>21. Dutton/ Sebastopol &amp; Barham</td>
<td>63</td>
<td>36</td>
</tr>
<tr>
<td>22. Dutton/ Barham &amp; Hearn</td>
<td>62</td>
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<tr>
<td>23. Dutton/ Hearn &amp; Bellevue</td>
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<td>NA</td>
</tr>
<tr>
<td>24. Mooreland/ Bellevue &amp; Robles</td>
<td>57</td>
<td>NA</td>
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<tr>
<td>25. SR12/ Stony Point &amp; Dutton</td>
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<td>27. US101/ SR12 &amp; Corby</td>
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<tr>
<td>28. US101/ Corby &amp; Hearn</td>
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3.2.5-18
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<tr>
<th>Locations</th>
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<tr>
<td>35. North Point/ S Dutton &amp; Dutton</td>
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<td>36. Dutton/ North Point &amp; Bellevue</td>
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<td>37. Ludwig/ Fresno &amp; Stony Point</td>
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<td>38. Bellevue/ Stony Point &amp; Primrose</td>
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<tr>
<td>39. Bellevue/ Primrose &amp; Dutton</td>
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<tr>
<td>40. Fresno/ Finley &amp; North Point</td>
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<td>41. Fresno/ North Point &amp; Ludwig</td>
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<td>42. Dutton/ Hearn &amp; North Point</td>
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<td>43. Fresno/ Sebastopol &amp; Finley</td>
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<tr>
<td>44. Wright/ Sebastopol &amp; North Point</td>
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<td>47. Stony Point/ Bellevue &amp; Todd</td>
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<tr>
<td>48. Bellevue/ Mooreland &amp; Santa Rosa</td>
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</table>

NA = Noise Contour either does not exist or is within the roadway.
Existing Southwest Area Plan residents would be exposed to exterior noise levels greater than 60 $L_{dn}$ and could be exposed to noise level increases of 1 dBA or more. Traffic noise from forty-three of the forty-seven evaluated roadways in the year 2010 would produce noise levels at or above 60 $L_{dn}$ at 100 feet from the centerline of the roadway.

There are probably over two-hundred residential dwellings, many businesses, several commercial areas, schools and parks adjacent or near planned new or improved roadways.

Given the absence of precise right-of-way locations for new roads and road widening projects, the impact of future noise on existing land uses cannot be accurately determined. However, use of Table 3.2.2-5 would provide the necessary impact data once rights-of-way are determined. Mitigation could include the following:

**Mitigation Measure 3.2.5-3**

- Retrofit existing residential land uses with acoustical attenuation materials, or relocate residences, to reduce interior noise levels for the year 2010 to below 45 $L_{dn}$. (I)
- Construct sound walls with moveable sound attenuating gates, or berms to reduce exterior noise levels of existing residential land uses for the year 2010 to 60 $L_{dn}$ or below. (I)
- Construct soundwalls or berms at playgrounds and neighborhood parks to reduce noise levels for the year 2010 to 70 $L_{dn}$ or below. (I)
- Construct soundwalls or berms at office buildings and commercial areas to reduce noise levels for the year 2010 to 65 $L_{dn}$ or below. (I)

Implementing the above mitigation measures would reduce interior noise levels to a level of insignificance. However, given that the above mitigation measures would require construction expenditures, the likelihood of all existing properties impacted by future noise receiving the necessary mitigation is considered remote. Therefore, Impact 3.2.5-3 is considered potentially significant. (PS)

**Impact 3.2.5-4**

Future transit use along the Northwestern Pacific Railroad Corridor within the Southwest Plan Area could affect ambient noise at the project site. This is considered to be a potentially significant impact. (PS)
In the future, the NWPRR railroad corridor could be used by a significant number of transit vehicles, with the possibility of evening and nighttime operations. Although, at this time there is no heavy railroad use on the adjacent track and no immediate plans for the railroad corridor, there is the potential for significant noise impacts to the planned residential and commercial uses adjacent to the corridor. Because there is no specific plan for the railroad corridor at this time it is not possible to predict noise levels for the adjacent land uses. However, using the "Simplified Procedure for Developing Railroad Noise Exposure Contour" by Jack Swing, and assuming twenty trains a day, the 60 $L_{dn}$ contour could be approximately 300 feet from the tracks. The 65 $L_{dn}$ contour could be approximately 150 feet from the tracks. This is considered to be a potentially significant impact.

Mitigation Measure 3.2.5-4

Implement Mitigation Measures 3.2.5-2. (I)

PROPOSED PROJECTS

SETTING

The Southwest Area Plan’s noise setting section discusses acoustic fundamentals, applicable state and City regulatory background information, and modeled existing noise levels. Specific noise sources and receivers near each of the thirty-five proposed projects is presented below.

Existing Noise Sources and Receivers

Project #1: Dutton Place. The proposed site and adjacent residential land uses are exposed to noise impacts from the adjacent roadway (Dutton Avenue) and the adjacent NWPRR railway. Highway 101 is located approximately 1750 feet from Project #1.

Project #2: Westmeadow Park. The proposed site and adjacent residential land uses are exposed to noise impacts from the adjacent Burbank Avenue.

Project #3: Western Gardens. The proposed site and adjacent residents are exposed to noise impacts from the adjacent Hearn Avenue and South Dutton Avenue. The railway is located approximately 1300 feet to the east and Highway 101 is located approximately 2800 feet from Project #3.
Project #4: Fouche Village. The proposed site and adjacent residents are exposed to noise from nearby Dutton Avenue and Highway 101. The NWPRR railway is adjacent to the project site. Highway 101 is located approximately 1500 feet from Project #4.

Project #5: Southcreek Village. The proposed site and adjacent residents are exposed to noise from the adjacent Burbank Avenue.

Project #6: Baker Subdivision. The project site and adjacent residents are exposed to noise impacts from the adjacent South Dutton Avenue.

Project #7: Burbank Ave. Condominiums. The proposed site and adjacent residents are exposed to noise from the adjacent Burbank Avenue.

Project #8: Ash Drive. The project site and adjacent residents are exposed to minimal existing noise. Adjacent Yuba Drive produces little noise due to its low traffic volumes.

Project #9: Courtside Village. The project residents, recreational users, and day care children and adjacent land uses are exposed to noise impacts from the adjacent State Route 12 and Sebastopol Road.

Project #10: Martin Homeless Housing. The project residents and adjacent land uses are exposed to noise impacts from the adjacent State Route 12 and Sebastopol Road.

Project #11: Northpoint Village. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road.

Project #12: Solarium 2010. The project site and adjacent land uses are exposed to noise impacts from the nearby State Route 12 and Sebastopol Road. State Route 12 is located approximately 600 feet to the north and Sebastopol Road is located approximately 700 feet from Project #12.

Project #13: Mountain View Homes. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and nearby Hearn Avenue. Hearn Avenue is located approximately 1000 feet from Project #13.
Project #14: Lands of Kersch. The project site and adjacent land uses are exposed to noise impacts from the nearby Stony Point Road and Bellevue Avenue.

Project #15: Giffen Estates. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and nearby Northpoint Parkway.

Project #16: Lands of Wismer. The project site and adjacent land uses are exposed to noise impacts from the nearby Stony Point Road and Bellevue Avenue.

Project #17: Pero Apartments. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and nearby Northpoint Parkway.

Project #18: Burbank Housing (2450 Old Stony Point Rd.). The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and nearby Hearn Avenue.

Project #19 (A and B): Skidmore Acres. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and Bellevue Avenue.

Project #20: South Dutton (Weiss/Grossman). The project site and adjacent land uses are exposed to noise impacts from the adjacent Bellevue Avenue and South Dutton Avenue.

Project #21: Orchard Park. The proposed site and adjacent residents are exposed to noise from nearby Mooreland Avenue and Highway 101. The NWPRR railway is adjacent to the project site. Highway 101 is located approximately 800 feet east of Project #21.

Project #22 (A and B): Springfield. The proposed site and adjacent residents are exposed to noise from adjacent Wright Road and Ludwig Avenue.

Project #23: Young's Dutton Place. The project site and adjacent residents are exposed to noise impacts from the adjacent South Dutton Avenue.

Project #24: Lara Subdivision. The proposed site and adjacent residents are exposed to noise from the adjacent Burbank Avenue.
Project #25: Patrick Brennan Acres. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road and nearby Northpoint Parkway.

Project #26 A and B (#26 & #32): California Stony Point/Bates Investment Property. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road.

Project #27: Lands of Pierre. The project site and adjacent land uses are exposed to noise impacts from the nearby Bellevue Avenue and adjacent South Dutton Avenue.

Project #28: Valena (Village Station). The project site and adjacent land uses are exposed to noise impacts from the adjacent State Route 12 and Sebastopol Road.

Project #29: Bellevue Ranch. The project site and adjacent land uses are exposed to noise impacts from the adjacent Stony Point Road, Hearn Avenue, and South Dutton Avenue. The railway is located approximately 700 feet to the east.

Project #30: Air Center. The project site and adjacent land uses are exposed to noise impacts from the adjacent Sebastopol Road, Ludwig Avenue, and Wright Road.

Project #31: Ken Martin Property. The project site and adjacent residents are exposed to minimal existing noise. Adjacent Hearn Avenue produces little noise due to its low traffic volumes.

Project #32: SEE PROJECT #26

Project #33: Bellevue Interchange. The project site and adjacent land uses are exposed to noise impacts from the adjacent Highway 101.

Project #34: Southwest Fire Station. The project site and adjacent land uses are exposed to noise impacts from the adjacent North Point Parkway.

Project #35: Bellevue Elementary School. The proposed site and adjacent residential land uses are exposed to noise impacts from the adjacent roadway (South Dutton Avenue) and the nearby Hearn Avenue.
IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology associated with the Proposed Projects is the same as presented for the Southwest Area Plan.

**Impact 3.2.5-5**

The thirty-five Proposed Projects would cause temporary increases in noise levels on and around each site over the entire period of construction due to earthmoving, utility and general construction activities. This is considered to be a short-term significant impact. (S)

Construction activities would temporarily increase noise levels around each of the thirty-five planned projects similar in magnitude than the impacts discussed in 3.2.5-1. These activities would have a potential for disturbing residents, school children, and businesses in and near the Plan Area. Earthmoving, materials handling, stationary, and impact equipment and vehicles generate noise during clearing, excavation, grading, roadway and utility construction operations associated with construction. Major demolition noise is expected for Project #30 due to the removal of the old air center runway cement. Additionally, Project #33, Bellevue Interchange is expected to produce significant noise levels. Implementation of following mitigation measure would reduce this impact to an insignificant level.

**Mitigation Measure 3.2.5-5**

Implement Mitigation Measures 3.2.5-1(a), 3.2.5-1(b), and 3.2.5-1(c).

**Impact 3.2.5-6**

The cumulative traffic volumes and rail transit would result noise impacts on thirty-four Proposed Projects (excludes Project #33, Bellevue Interchange). This is considered to be a significant impact. (S)

Traffic impacts associated with the thirty-five Proposed Projects would be the same as those mentioned above in impact 3.2.5-2. Traffic noise on several roadways in the year 2010 would produce noise levels in residential areas above 60 L_{dn}. Table 3.2.5-5 presents the L_{dn} at 100 feet from the centerline of 47 roadways for the Year 2010 with Southwest Area Plan scenario, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours.
Listed below are the thirty-five Proposed Projects and descriptions of where the significant $L_{dn}$ noise contour would be located. Mitigation Measure 3.2.5-6 described below would apply to that portion of each project where land use would be located within the significant $L_{dn}$ noise level.

**Project #1: Dutton Place.** The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 130 feet of Dutton Avenue's centerline and along the eastern edge within approximately 300 feet of the railway centerline.

**Project #2: Westmeadow Park.** The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 115 feet of Burbank Avenue's centerline.

**Project #3: Western Gardens.** The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the northern edge of the project within 165 feet of the centerline of Hearn Avenue.

**Project #4: Fouche Village.** The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge within approximately 300 feet of the railway centerline. The proposed park may be exposed to significant noise levels if the park is within 33 feet of the centerline of the railway.

**Project #5: Southcreek Village.** The proposed residential area would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 115 feet of Burbank Avenue's centerline. The proposed commercial would be exposed to significant noise levels if sensitive areas are within 55 feet of the centerline of Burbank Avenue.

**Project #6: Baker Subdivision.** The proposed residential area would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 69 feet from the centerline of South Dutton Avenue.
Project #7: Burbank Ave. Condominiums. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the eastern edge of the project within 115 feet from the centerline of Burbank Avenue.

Project #8: Ash Drive. Project #8 would not be impacted by vehicle traffic or railway noise.

Project #9: Courtside Village. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the northern edge of the project within approximately 600 feet from the centerline of State Route 12, along the eastern edge of the project within 89 feet from the centerline of Fresno Avenue, and transversing the middle of the site within 195 feet from the centerline of Sebastopol Road. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ along the northern edge of the project within approximately 285 feet from the centerline of State Route 12, along the eastern edge of the project within 41 feet from the centerline of Fresno Avenue, and transversing the middle of the site within 90 feet from the centerline of Sebastopol Road. The proposed park area would be exposed to significant future traffic noise levels greater than 70 $L_{dn}$ along the northern edge of the project within approximately 135 feet from the State Route 12's centerline, and transversing the middle of the site within 42 feet from the centerline of Sebastopol Road.

Project #10: Martin Homeless Housing. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the northern edge of the project within approximately 600 feet from the centerline of State Route 12, and on the southern perimeter of the site within 195 feet from the centerline of Sebastopol Road. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ along the northern edge of the project within approximately 285 feet from the centerline of State Route 12, and along the southern edge of the site within 90 feet from the centerline of Sebastopol Road.

Project #11: Northpoint Village. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 270 feet from the centerline of Stony Point Road. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ along the eastern edge of the project within 125 feet from the centerline of Stony Point Road. The proposed park area would be exposed to
significant future traffic noise levels greater than 70 $L_{dn}$ along the eastern edge of the project within approximately 59 feet from the Stony Point Road.

**Project #12: Solarium 2010.** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the northern edge of the project within approximately 600 feet from the centerline of State Route 12. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ along the northern edge of the project within approximately 285 feet from the centerline of State Route 12.

**Project #13: Mountainview Homes.** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 270 feet from the centerline of Stony Point Road.

**Project #14: Lands of Kersch.** The proposed residential areas could be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 270 feet from the centerline of Stony Point Road and along the southern edge of the project within 210 feet from the centerline of Bellevue Avenue.

**Project #15: Giffen Estates.** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 285 feet from the centerline of Stony Point Road.

**Project #16: Lands of Wismer.** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 270 feet from the centerline of Stony Point Road.

**Project #17: Pero Apartments.** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 285 feet from the centerline of Stony Point Road.

**Project #18: Burbank Housing (2450 Old Stony Point Rd.).** The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the
project within 270 feet from the centerline of Stony Point Road and within 205 feet from the centerline of Northpoint Parkway.

Project #19 (A and B): Skidmore Acres. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 260 feet from the centerline of Stony Point Road and within 210 feet from the centerline of Bellevue Avenue.

Project #20: South Dutton (Weiss/Grossman). The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 69 feet from the South Dutton Avenue's centerline and within 225 feet from the centerline of Bellevue Avenue.

Project #21: Orchard Park. The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge within approximately 300 feet of the railway centerline and within 1070 feet of the centerline of Highway 101. The proposed park maybe exposed to significant noise levels if the park is within 33 feet of the centerline of the railway.

Project #22 (A and B): Springfield. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within approximately 145 feet from the centerline of Wright Road, along the south edge of the project within 145 feet of Ludwig Avenue, and along the eastern edge of the site within 92 feet from the Fresno's centerline. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ along the western edge of the project within approximately 68 feet from the centerline of Wright Road, along the south edge of the project within 67 feet of Ludwig Avenue, and along the eastern edge of the site within 43 feet from the Fresno’s centerline.

Project #23: Young's Dutton Place. The proposed residential area would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 69 feet from the centerline of South Dutton Avenue.
Project #24: Lara Subdivision. The proposed residential land uses would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 115 feet of Burbank Avenue's centerline.

Project #25: Patrick Brennan Acres. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 285 feet from the centerline of Stony Point Road.

Project #26 (A and B) (#26 & #32): California Stony Point/Bates Investment. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 270 feet from the centerline of Stony Point Road.

Project #27: Lands of Pierre. The proposed residential area would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the western edge of the project within 69 feet from the centerline of South Dutton Avenue.

Project #28: Valena (Village Station). The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the northern edge of the project within approximately 600 feet from the centerline of State Route 12, and along the southern edge of the site within 195 feet from the centerline of Sebastopol Road.

Project #29: Bellevue Ranch. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ within 125 feet of Hearn Avenue's centerline between Stony Point Road and Northpoint Parkway, within 165 feet of Hearn Avenue's centerline between South Dutton and Dutton, within 195 feet of Dutton Avenue's centerline, within 69 feet of South Dutton Avenue's centerline, within 210 feet of Dutton Avenue's centerline between Northpoint and Bellevue, and within 210 feet of Northpoint Parkway's centerline. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ within 57 feet of Hearn Avenue's centerline between Stony Point Road and Northpoint Parkway, within 77 feet of Hearn Avenue's centerline between South Dutton and Dutton, within 91 feet of Dutton Avenue's centerline between Hearn and Northpoint, within 32 feet of South Dutton Avenue's centerline, within 100 feet of Dutton Avenue's centerline between Northpoint and Bellevue, and within 98 feet of Northpoint Parkway's centerline. The proposed park area would be exposed to significant future traffic noise levels greater...
than 70 $L_{dn}$ within 25 feet of Hearn Avenue’s centerline between Stony Point Road and Northpoint Parkway, within 35 feet of Hearn Avenue’s centerline between South Dutton and Dutton, within 42 feet of Dutton Avenue’s centerline between Hearn and Northpoint, within 46 feet of Dutton Avenue’s centerline between Northpoint and Bellevue, and within 45 feet of Northpoint Parkway’s centerline.

Project #30: Air Center. The proposed residential areas would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ within 130 feet of Northpoint Parkway’s centerline between Wright Road and Fresno, within 195 feet of Northpoint Parkway’s centerline between Fresno and Corporate Center Parkway, within 180 feet of Fresno’s centerline between Finley and Northpoint, within 92 feet of Fresno between Northpoint and Ludwig, within 170 feet of Wright’s centerline, and within 230 feet of Ludwig Avenue’s centerline. The proposed commercial areas would be exposed to significant future traffic noise levels greater than 65 $L_{dn}$ within 59 feet of Northpoint Parkway’s centerline between Wright Road and Fresno, within 93 feet of Northpoint Parkway’s centerline between Fresno and Corporate Center Parkway, within 84 feet of Fresno’s centerline between Finley and Northpoint, within 43 feet of Fresno between Northpoint and Ludwig, within 79 feet of Wright’s centerline, and within 110 feet of Ludwig Avenue’s centerline. The proposed park area would be exposed to significant future traffic noise levels greater than 70 $L_{dn}$ within 26 feet of Northpoint Parkway’s centerline between Wright Road and Fresno, within 43 feet of Northpoint Parkway’s centerline between Fresno and Corporate Center Parkway, within 39 feet of Fresno’s centerline between Finley and Northpoint, within 36 feet of Wright’s centerline, and within 50 feet of Ludwig Avenue’s centerline.

Project #31: Ken Martin Property. Project #31 would not be impacted by vehicle traffic or railway noise.

Project #32: See Project # 26.

Project #33: Bellevue Interchange. Project #33 would not be impacted by vehicle traffic or railway noise since it does not contain sensitive land uses.

Project #34: Southwest Fire Station. The proposed fire station would be exposed to significant noise levels if sensitive areas are within 105 feet of the centerline of Northpoint Parkway.
Project #35: Bellevue Elementary School. The proposed school area would be exposed to significant future traffic noise levels greater than 60 $L_{dn}$ along the eastern edge of the project within 69 feet from the centerline of South Dutton Avenue.

Implementation of following mitigation measure would reduce noise impacts to an insignificant level.

Mitigation Measure 3.2.5-6

Implement Mitigation Measure 3.2.5-2. (I)

REFERENCES


3. ibid.


4. GROWTH INDUCEMENTS

INTRODUCTION

Section 15126(g) of the CEQA Guidelines requires the following treatment:

Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Increases in the population may further tax existing community service facilities, so consideration must be given to this impact. Also discuss the characteristics of projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

In short, CEQA requires a discussion of how a project could contribute to population, employment, or housing growth in surrounding areas and the impacts resulting from this growth. Section 3.1.3, Population, Employment and Housing, discusses this topic in detail. This section of the EIR discusses the manner in which the Area Plan Project would affect growth. CEQA Guidelines indicate that a project would normally have a significant effect on the environment if it would "induce substantial growth or concentration of population.

SOUTHWEST SANTA ROSA AREA PLAN

The Area Plan project would directly contribute to growth by creating new residential and commercial space. However, it is important to note, as specified previously (refer to Section 2, Project Description), preparation of the Area Plan is required under the provisions of the Santa Rosa General Plan, and is thus considered growth accommodating and not a significant environmental impact. As noted in the General Plan EIR, the General Plan sets in place policies that will help to define and direct future growth in Santa Rosa. The Plan also provides land use designations and
development densities for all lands which are currently vacant or underutilized. As such, the Plan is intended to guide and accommodate residential growth and population increases.¹

At buildout, the Area Plan would support 19,395 jobs and create 9,540 dwelling units which would support 24,200 new residents (see Table 2.3-1). This growth would then create two types of secondary growth: The first type of secondary growth would consist of new households formed by the new employees working in new businesses. These new households could choose residential locations within the Plan area or surrounding environment. Overall population growth resulting from the Area Plan at buildout would amount to 58 percent of the projected population growth in Santa Rosa by the year 2010, and 16 percent of total Sonoma County growth by the year 2010 (assumes Area Plan buildout by 2010).

Secondary growth would have the potential for secondary environmental impacts. The secondary growth would not automatically create environmental impacts in and of itself. This potential is realized to the extent that new residential development would be consistent with the provisions of the General Plan for other portions of Santa Rosa and provisions of the Southwest Area Plan itself, within the City’s Urban Boundary. If that happens, then it can be assumed that the secondary households’ demand for a residential location was fulfilled by the addition of housing stock.

The second type of secondary growth stems from the secondary or "induced" employment generated by the economic activity occurring in the commercial space developed by a proposed project (i.e., Project #29, Bellevue Ranch, with approximately 170,000 square feet of commercial space, and Project #30, Air Center, with approximately 100,000 square feet of commercial space).

Secondary employment is generated by a direct increase in economic activity. It is due to the increases in spending that would occur on the part of the businesses, employees, and employee households related to the direct economic activity of the projects. It is also due to the additional spending that would occur on the part of suppliers of the goods and services demanded by the projects’ direct economic activity (businesses, employees and primary and secondary households), plus the additional spending on the part of the suppliers’ additional employees and related households. Production, employment, and households would increase with each new round of spending, but at a decreasing rate with each additional round.
Infrastructure Projects

Growth in a given area may be induced by removing infrastructural barriers to growth, by providing new infrastructure and/or improving transportation access. The growth-inducing potential of the infrastructure projects within the Southwest Area Plan would be significant if the Plan created the capacity to accommodate growth above and beyond what was permitted under the Area Plan itself. Infrastructure projects of road widenings, new roads, expanded sewer, water and drainage systems are being designed to serve the Plan Area itself. Any future development outside the current Urban Boundary, and thus the Area Plan boundary, resulting from any development proposal to modify the Urban Boundary, would be expected to require adjustments and/or improvements to sewer, road and water projects currently planned for the Plan Area.

Parcels that have been without public water and sewer service in the Southwest Plan area would have direct access to expanded sewer and water services planned to serve new development with implementation of the Area Plan proposals. The resulting new residential and commercial development of the proposed projects would bring in a new resident population (to the extent existing Santa Rosa residents would not relocate to the Southwest Area), and more employment opportunities, as well as increased business sales (refer to the discussion above under the title Southwest Santa Rosa Area Plan).

North of State Highway 12 and north and east of U.S. 101 are currently developed areas of the City. To the west of South Wright Road, which forms the western margin of the Plan Area, is an area of rural residential development served by the City Fire Department through agreement with the Roseland Fire Protection District. Much of this area is also provided with sanitary sewer service for existing uses and/or one home per existing vacant parcel. With the development of infrastructure at its current level, significant growth west of S. Wright Road is not anticipated. The area is outside of the City’s Urban Boundary. To the south are also predominantly rural residential and agricultural land uses, and wetland areas.

Growth can only happen through capital investment in new economic opportunities by the private or public sectors (predominantly the former). Development pressures are created by the desires of investors to mobilize their resources in a particular region or locality. These pressures help to structure the local politics of growth and the local jurisdiction’s posture on growth management and
land use policy. The growth-inducing potential or pressure created by a project is therefore mediated by the locality itself.

PROPOSED PROJECTS

Growth resulting from the 35 proposed projects within the Southwest Area Plan would be secondary in nature. The development of currently vacant or underutilized land normally has secondary growth-inducing impacts in terms of intensified land use, increased job opportunities as noted above, increased municipal tax revenues and greater demands (impacts) on transportation, circulation and public service facilities, including sewer and water supply as described in the respective sections of this EIR.

Project construction would generate jobs in the construction, materials fabrication and supply industries up until the time of construction completion. The provision of construction jobs for the projects would create secondary (i.e., incremental) demand for local goods and services. Cumulative development, inclusive of the construction of other projects in Santa Rosa outside the Southwest Area Plan area would magnify the need for materials and services relating to the construction industry during the construction period, assuming the construction periods of such projects would overlap.

It would be expected that some of the labor force constructing the Area Plan projects would be hired from within Sonoma and Marin Counties, and that some employees currently working on construction in the area might transfer from those projects when completed, to construction of the Area Plan projects. In sum, the Area Plan projects would directly increase economic and employment activity in proportion to the size of the projects.

Housing from the 33 proposed projects in the Area Plan can be considered growth accommodating in that they would partially meet the projected need for housing in Santa Rosa. Construction of the housing would not in and of itself remove obstacles to growth. As noted previously (see Section 2, Project Description), the proposed projects would be one component of the Southwest Area Plan, which in turn would require an amendment to the City’s General Plan, and the Area Plan is required under the provisions of the General Plan. The Southwest Area as described in the City’s General Plan and Area Plan is projected for development.
In summary, growth and the rate of growth shapes both the physical and social structure of communities. As indicated above, the Area Plan project and its developmental components would contribute to growth within Santa Rosa, and while the contribution to growth would be significant, within the context of cumulative area development and the Area Plan project would not generate significant growth inducing impacts.

5. UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

In accordance with Section 15126(b) of the California Environmental Quality Act (CEQA) Guidelines, this section sets forth those significant impacts, including those that can be mitigated but not reduced to a level of insignificance, that would result from the Area Plan project, Infrastructure projects, and the 35 individual project proposals within the Plan area.

CEQA requires the decision-maker (lead Agency) to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. Where a decision on a project allows the occurrence of significant effects that are identified in an EIR but are not at least substantially mitigated, the Lead Agency is to state in writing through a Statement of Overriding Considerations the specific reasons to support its action based on the EIR and/or other information in the record. If a Lead Agency makes a Statement of Overriding Considerations, the Statement should be included in the record of the project approval.¹

UNAVOIDABLE, SIGNIFICANT ADVERSE IMPACTS

LAND USE

SOUTHWEST AREA PLAN

- Implementation of the Area Plan would result in the loss of approximately 848 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

PROPOSED PROJECTS

- Construction of the 35 proposed projects could result in the loss of approximately 406 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. The primary contributors to this loss would be projects #9, #11, #22, #29 and #30.
TRAFFIC AND CIRCULATION

SOUTHWEST AREA PLAN

- The project adds traffic to US 101, which is today congested in this area, especially between 4-6 PM in the northbound direction. The Project includes proposals by others to add a carpool/transit lane to US 101 in each direction, as well as auxiliary lanes between ramps. Even so, traffic level of service (LOS) would be LOS "F" in some areas, primarily south of the Bellevue interchange. LOS "F" corresponds to "stop and go" traffic conditions, with an average speed of about 8-10 MPH.

PROPOSED PROJECTS

- Land development and increased human activities in the area would increase the number of vehicle trips generated. These added trips would result in delays and slower travel for existing traffic during peak commute times.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHWEST AREA PLAN

- Buildout of the Southwest Area Plan would convert land parcels that are currently semi-rural to rural in character to an urban condition. This development would constitute a significant change in visual conditions within central to south and west portions of the Plan Area, and Southwest Santa Rosa.

- If constructed as proposed, the proposed Fulton/Wright Road overcrossing and interchange at State Highway 12 would be seen as increased urbanization in an area that currently appears semi-rural in character. The transition from rural to urban conditions to the eastbound Highway 12 motorist would be sudden and abrupt.

PROPOSED PROJECTS

- The buildout of Projects #11, #29A and #30 would convert land parcels that are currently semi-rural to rural in character to an urban condition. This development would constitute a significant change in visual conditions within central to south and west portions of the Plan Area.

SOILS, GEOLOGY AND SEISMICITY

SOUTHWEST AREA PLAN

- The Bellevue Avenue interchange may be subject to the damaging effects of surface rupture where it crosses a possible splinter trace of the Rodgers Creek fault.
VEGETATION AND WILDLIFE

SOUTHWEST AREA PLAN

- Development within the Southwest Area Plan will result in loss of grassland foraging area for sensitive bird species known to occur within the Southwest Area Plan.

NOISE

SOUTHWEST AREA PLAN AND PROPOSED PROJECTS

- Development of the Southwest Area Plan and infrastructure improvements, in conjunction with cumulative traffic, could result in increased traffic noise impacts on existing Area Plan land uses.

1. 14 California Code of Regulations Section 15000, *et seq.*
6. ALTERNATIVES

INTRODUCTION

This section of the EIR describes a number of alternatives to the Southwest Area Plan, Infrastructure projects, and the 35 individual project proposals within the Southwest Area Plan. These include alternatives that have been considered by the City of Santa Rosa and the EIR preparers.

The purpose of the discussion of alternatives is to focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of project objectives or would be more costly.

Because preparation of the Area Plan is required under the Santa Rosa General Plan, the Area Plan boundary is thus defined and fixed as described in the Area Plan. Alternative locations for the Area Plan do not exist, with the Plan Area lying within the City's Urban Boundary established under existing law.

6.1 NO AREA PLAN

For purposes of definition, the No Area Plan alternative is synonymous with the description of the No Project alternative. Analysis of the No-Project alternative is required under CEQA.

Without the Area Plan, the Southwest quadrant of Santa Rosa bounded on the east and north by U.S. Highway 101 and State Highway 12 respectively, would be expected to be built out according the provisions of the General Plan, Santa Rosa 2010. Thus the option of no development at all would not necessarily prevail.
Normally, under a no project scenario, a potential development site would remain in its current condition and the identified environmental impacts associated with a proposed project would not occur for the time being. For example, using a hypothetical condition, there would be no project-related inducements on population growth, nor would there be growth associated with secondary employment. There would be no project-induced increase in the demand for local public and utility services. There would be no increased consumption of nonrenewable energy resources that would otherwise be associated with construction and operation of the project. In addition, there would not be any increase in air quality emissions or in ambient noise from construction or operation of the project, no alteration in the existing ground form or potential erosion impacts.

However, in this case, development under the General Plan in Southwest Santa Rosa would be expected to generate the unavoidable significant environmental impacts similar to the Area Plan project as proposed. This would include the construction of infrastructure, the Bellevue overcrossing and Wright-Fulton interchange projects, and individual housing/commercial development proposals. As described in Section 5 of this EIR, the significant unavoidable adverse impacts for the Plan area include the loss of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County, cumulative development impacts increasing congestion on U.S. 101, converting a semi-rural/rural setting to urban development, destruction of existing foraging habitat, construction noise impacts and operational (traffic) noise impacts on existing land uses.

With respect to traffic issues, the land use changes proposed in the Southwest Area Plan are rather modest in comparison to the General Plan map land uses. The Area Plan would in fact have a net effect of reducing trip generation. In Table 6-1, a minus figure indicates a reduction from the General Plan with the Area Plan; a plus indicates that the Area Plan adds units.

Reductions in land development, especially commercial/employment development, occurred because market studies indicated there would not be a demand for the amount of commercial space allowed in the General Plan by the year 2010. The reductions in development translate to approximately 74,500 fewer weekday vehicle trip ends generated by the project (the Area Plan). This would be on the order of 6,000-8,000 fewer PM peak hour trips. The reduction in trips indicates that the Area Plan Project would result in better, or certainly no worse, level of service impacts to intersections and
### TABLE 6-1

COMPARISON OF THE 1991 GENERAL PLAN (NO PROJECT) LAND USES AND TRIP GENERATION WITH THE AREA PLAN

<table>
<thead>
<tr>
<th>Land Uses</th>
<th>Quantity</th>
<th>Weekday Trip Generation Rate*</th>
<th>Total Daily Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-457 DU**</td>
<td>10/DU</td>
<td>-4,570</td>
</tr>
<tr>
<td>Multifamily (Attached)</td>
<td>+555 DU</td>
<td>7/DU</td>
<td>+3,885</td>
</tr>
<tr>
<td>Retail &amp; Business Services¹</td>
<td>-580,500 sq. ft.</td>
<td>50/1,000 s.f.</td>
<td>-29,025</td>
</tr>
<tr>
<td>Office/Business Park/General Industry</td>
<td>-4,212,700 square feet</td>
<td>11.4 / 1,000 s.f.</td>
<td>-48,025</td>
</tr>
<tr>
<td>Public/Institutional (including schools)</td>
<td>+ 31 acres</td>
<td>100 / acre</td>
<td>+3,100</td>
</tr>
<tr>
<td>Parks/recreation</td>
<td>+ 18 acres</td>
<td>5/acre</td>
<td>+90</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>---</td>
<td>---</td>
<td><strong>-74,545</strong></td>
</tr>
</tbody>
</table>

¹ Commercial has been treated as if all of it were retail (stand alone or strip retail).
* Trip generation rate is in vehicle trip-ends per unit of land use or activity indicated.
** DU= Dwelling Units
to arterial corridors in the surrounding area, than the No Project Alternative. Comparisons of traffic impacts for major roadways in the Southwest are indicated below:

**US 101**

The project includes Caltrans’ proposed changes to the ramp configurations on 101, including conversion of the Baker Avenue interchange to an overcrossing, and HOV lanes on 101, rather than mixed-flow lanes. The No Project alternative would add regular mixed-flow lanes (not carpool lanes) to US 101, and so generally provides greater capacity along US 101. Therefore, in some areas (primarily south of Hearn Avenue to Todd Road) it provides for better levels of service than the project would. On the other hand, traffic speeds and LOS would probably be better from Hearn to Highway 12 with the Project than the No Project Alternative.

**Highway 12**

Level of Service is about the same for the two alternatives; both generally provide for LOS "D" or better.

**Stony Point Road**

LOS is about equal between the two plans, with somewhat less delay in the Project than the No Project alternative. Under both alternatives the greatest congestion occurs between Sebastopol Road and Highway 12.

**Sebastopol Road**

Sebastopol Road traffic volumes would be substantially lower under the Project than the No Project alternative, due to reductions in the allowable amount of land development. Delay would thus be reduced and traffic levels of service improved with the Project.

**Dutton Avenue**

In the Project Alternative, Dutton Avenue volumes north of Hearn are slightly lower in the northbound direction, and slightly higher in the southbound direction, than in the No Project alternative (in the afternoon commute hours). Overall level of service should be roughly the same.
Hearn Avenue

Hearn Avenue volumes are substantially reduced in the Project because of reductions in allowable land use, and because the circulation system no longer emphasizes Hearn as a major east/west arterial. Levels of service would thus be improved in the Project.

Bellevue Avenue

Bellevue Avenue traffic volumes and level of service are approximately the same in both the Project and No Project alternative.

Transit and Pedestrian Impacts

With its emphasis on providing for higher density land uses that can support high levels of transit; walking and bicycle circulation systems; good connectivity within and between adjacent developments; and other features to reduce trip making, the Southwest Area Plan should create a small reduction in the number of motorized trips per dwelling units. Evidence from other locations suggests that such measures, when aggressively pursued, can reduce automobile trip generation of households by up to 6-8% per dwelling unit, when compared to typical suburban developments.²

In conclusion, under the No Area Plan alternative, different development proposals that are different from the current project proposals could be presented. Conflicting land uses and/or circulation schemes could arise, which would otherwise not occur under a single coordinated Area Plan proposal for which an EIR is prepared, such as the existing Draft Southwest Area Plan. Instead, while the EIR prepared for the General Plan addressed the General Plan in a general way, specific development proposals under the General Plan would require independent environmental review on a project-by-project basis by the City of Santa Rosa. Each project would receive environmental review over an extended time period.

This brings up an important point with respect to the Area Plan project. Essentially 35 Area Plan elements are addressed as a comprehensive whole within the EIR. These elements include the 34 project proposals, the Bellevue/U.S. 101 interchange project, and proposed infrastructure (utilities, water and sewer). Under CEQA, combining these projects into one comprehensive EIR actually assists long range land use planning for the Southwest Area and places the Area Plan components (individual projects), as well as the Area Plan itself into a broader regional context of environmental review. For example, while CEQA establishes a framework for EIRs that applies to specific plans,
projects and even building permits, these narrowly focused reviews often take precedence over a
given locality's General Plan (or Area Plan), rendering that Plan less relevant as a guiding planning
document and draining the Plan review of its importance as a format for envisioning a community's
future.

In addition, without the Southwest Area Plan, future EIRs dealing only with local environmental
impacts, would likely not take into account potential adverse or beneficial long-term, region-wide
effects in the Santa Rosa area. For this reason, EIRs on individual projects usually favor mitigation
measures that reduce a project's size, regardless of what is called for in the General Plan. The
required analysis of alternatives, tends to weight toward less intense possible projects, which in turn
can result in lower densities and correspondingly exacerbate the process of urban sprawl. In this case,
without the Southwest Area Plan, environmental review that complements regional growth
management strategies in the Santa Rosa area would not be undertaken, detracting from a certain
efficiency that is possible within the planning and development process.

6.2 REDUCED DEVELOPMENT

The alternative of Reduced Development within the Plan Area would imply the retention or
preservation of a greater amount of open space (undeveloped land), as compared to development
under the Selected Area Plan at buildout. More open space would allow for more flexibility in
planning for the preservation of existing wetlands and foraging habitat, and/or the creation of
wetlands to compensate for wetlands lost to development within the Southwest Area, as well as for
the loss of wetlands in other areas of Santa Rosa in general. However, reduced development would
not significantly affect cumulative traffic congestion on U.S. 101 because of regional growth and
development.

With increased open space, there would be more flexibility available in planning to avoid the visual
impacts of converting a semi-rural/rural setting to an urban setting. For example, view corridors could
reasonably be established for preserving views of regional hillsides and agricultural lands from selected
roadways and parklands. There would still be construction noise, even though these impacts would
be localized and short-term in duration.

There would also be cumulative air quality emissions resulting from traffic and development, and
there would be increased traffic noise adversely impacting existing land uses. There would be a
reduced demand on existing utilities (water, sanitary and storm sewers) and public services, including the need for new schools, and increased police and fire protection services. The mitigation of sites containing hazardous materials would still be required prior to construction in areas of known contamination, and mitigation regarding site soils and seismic conditions would be required, as would be required under the Selected Area Plan. The significant impacts that can be mitigated to levels of insignificance under the Selected Area Plan could also be mitigated to levels of insignificance under the Reduced Development Alternative as detailed in the respective technical sections of this EIR. The primary benefits of this alternative however would appear to centered around existing wetland preservation and preserving visual quality.

This alternative would not likely be implemented. This is because the Selected Area Plan is generally consistent with the provisions of the adopted Santa Rosa General Plan 2010, which specifically calls for a coordinated development effort within the Southwest Area at a given density and distribution of development. Appropriate policies for the Area Plan have been developed in detail based on the policies in the General Plan, but are more detailed in scope and content and will take precedence of the General Plan for the Plan Area. The Santa Rosa General Plan Map would be amended to reflect the land use mix of the Southwest Area Plan Map (see Section 2, Project Description for additional information regarding this issue).

6.3 INCREASED DENSITY

A proposed Policy Statement (June, 1993), of the Santa Rosa Planning Commission Subcommittee on Transportation (for the Santa Rosa Southwest Area Plan), calls for high density and intensity land uses along the Northwestern Pacific Railroad (NWPRR) corridor to enable future use of the corridor as a route for local and regional transportation. In addition General Plan Goal LUR-2a calls for the "—development of higher density housing near the Northwest Pacific Railroad Corridor and community and neighborhood shopping centers, in order to create village rather than suburban character and reduce vehicular travel, and, where possible, within walking distances of workplaces." In addition, Objective 2.1 of the Southwest Area Plan Circulation and Transportation Chapter states: "To improve the long term viability for public rail potential future rail station/stops have been designated as part of the Southwest Area Plan."
This alternative focuses on increasing development density and intensity along the railroad corridor without increasing the overall development density as envisioned in the Selected Area Plan. In other words, the total housing units, population, commercial space and parks would remain as projected for the Area Plan at buildout (see Table 2.3-1). The highest densities would generally be closest to transit stops with development becoming less dense at locations away from the railroad corridor. For example, the area around Bellevue Avenue and the railroad corridor is already developed with industrial uses and could be further developed with intense industrial/commercial uses incorporating a park-and-ride facility for transit commuters. Also, the Roseland Redevelopment area from Highway 12 to south of Barham Avenue could be designated for high density residential uses with neighborhood retail. Residential densities could go up to approximately 30 units per acre within 1,500 feet of the railroad corridor. Long-term planning would be required under this development alternative.

Increased density along the railroad corridor would facilitate use of the corridor as a transportation artery by local residents. Accordingly, there would be less reliance upon use of the automobile for commuting with an attendant reduction in local peak hour traffic. The reduction in peak hour traffic would be proportional to the amount of increased use of the railroad corridor for commuting purposes.

Under this alternative, with increased density along the railroad corridor, the amount of open space projected under the Selected Area Plan would be expected to be greater than 150 acres (excludes any open space that would be included within the Residential-Low Density/Open Space land use category).

Under this scenario, there would be greater flexibility in dealing with the issue of wetlands and rare species. For example, with the provision of more open space than currently envisioned under the Selected Area Plan, there would be greater opportunity to locate and configure potential open space areas to preserve existing wetlands, as well as providing additional area to create new wetlands as compensation for wetlands displaced by development.

However, because the overall level of development for the Area Plan under this alternative approximates the level of development under the Selected Alternative, mitigation measures to reduce environmental impacts to levels of insignificance as necessary for the Selected Alternative would also
be required for the Increased Density Alternative. This would exclude wetlands as noted above to the extent more open space area would be available for wetland mitigation and/or the retention of existing wetlands.

The significant and unavoidable impacts under this alternative would be expected to be similar to the significant and unavoidable impacts identified under the Selected Area Plan. For example cumulative traffic congestion impacts on U.S. 101 would still be expected to occur through regional growth. Converting a semi-rural/rural setting to an urban setting would still occur with Area Plan development, and there would be loss of foraging habitat, construction noise, and traffic noise impacting existing land uses. Other significant impacts can be mitigated to levels of insignificance as detailed in the respective technical sections of this EIR.

Other impacts with increased density along the railroad corridor could occur that are not specifically identified for the Selected Area Plan. For example, there could be reduced road segment and intersection service levels within the corridor area because of increased traffic during the peak hours to access park-and-ride lots or transit stations. Sewer and storm drain facilities may not be adequate to handle the increased development densities. Without careful planning, there could be land use conflicts arising with residential development in close proximity to industrial development.

Therefore, at this time, from the standpoint of environmental impacts, the Increased Density Alternative would not appear to offer a significant advantage over the Selected Alternative.

6.4 ALTERNATIVE AREA PLANS

This discussion is to document Alternative Area Plans prepared for the Southwest Area, describe reasons for their rejection and provide a general assessment of potential environmental impact as compared to the Selected Area Plan.

During preparation of the Southwest Area Plan (see Section 2.1, Background and Project Origination for relevant information), a 10-member Advisory Citizens Committee was appointed by the City Council to work with City of Santa Rosa Planning staff on preparation of the Southwest Area Plan. The Committee and staff met on eight occasions over a four month period beginning in mid-October of 1991 to discuss and solicit input on the Southwest Area Plan. During the first two meetings, City staff provided background information and discussed the Santa Rosa General Plan, the Southwest
Santa Rosa Master Environmental Assessment and existing land uses. In subsequent meetings, the Committee identified and discussed opportunities, constraints and issues for development, explored various planning theories such as Neo-traditional town planning, Pedestrian Pockets and Transit Oriented Developments.

The Committee also discussed concepts related to neighborhoods and communities and discussed goals and objectives for the Southwest. The Committee devoted four meetings to the review and discussion of Alternative Sketch Plans prepared by City staff. The Committee spent it's last two meetings formulating a recommendation on a Preferred Alternative Sketch Plan. After public hearings before the City Planning Commission and City Council, the Preferred Sketch Plan was directed back to the Committee and staff for further refinements. Several months later, the Selected Alternative Sketch Plan and a Goals and Policies Statement was adopted for utilization as a framework for completing preparation of the Southwest Area Plan documents.

The Alternative Sketch Plans responded in different ways to the issues, constraints and opportunities for area planning identified during early portions of Area Plan preparation. For the most part, the alternative sketches reflected the General Plan Land Use diagram and General Plan development policies relevant to the Southwest Area. Major issues identified by the Committee and Planning staff included those pertaining to land use, protection of existing wetlands, rental vs. for sale housing mix, affordable housing, commercial facilities, park and recreation facilities, circulation, potential air quality and noise impacts, mitigating potential traffic impacts, habitat protection, infrastructure planning and other considerations respecting planning and environmental protection.

The goal for the sketch plans was to respond to these items while considering some basic provisions as set forth in the Santa Rosa General Plan, consistent with the goal of using the General Plan as a guide for development. Each of the plans consisted of a somewhat different mix of land uses, development densities and positioning of land use categories with respect to each other.

In general, each of the Sketch Plans maintained an approximate balance of residential housing units and population envisioned by the current General Plan. A full range of residential land use classifications as well as a reduction in the amount of land designated for Business Park development was utilized to maintain the approximate population projections of the General Plan. The General
Plan land use diagram was reviewed as a control model. Table 6.4-1 provides a summary comparison of the land uses envisioned for each of the Alternative Sketch Plans.

The discussion below summarizes the major considerations regarding each of the Sketch Plans that ultimately lead to preparation of a Selected Alternative Plan. The following is taken from the Southwest Area Plan Staff Report dated February 27, 1992.

**Alternative A**

"In comparison with the General Plan, Alternative A proposes a minor increase of 249 housing units and a corresponding population increase of 575 persons.

"This alternative does not designate any land for Very Low Density Residential development but does employ the new Medium-Low Density Residential designation to create diversity in housing types.

"Industrially designated land is reduced in favor of commercially designated land along Sebastopol Road between Stony Point Road and Dutton Avenues (Roseland Village). As the area designated for commercial development would be very large, it is assumed that the majority of this land would serve community wide and possibly regional needs.

"The amount of Open space land area remains approximately the same, however, it is relocated in recognition of the most valuable wetland/rare plant areas identified to date.

"Circulation differs from the General Plan in that major streets are relocated to avoid rare plant areas. Additionally, Northpoint Parkway extensions are designed to focus heavy traffic volumes away from residential areas."

**Alternative B**

"Compared to the General Plan, Alternative B would increase the number of housing units by approximately 600 and would correspondingly, increase the population by 1,372 people."
### TABLE 6.4-1

#### SUMMARY LAND USE COMPARISONS OF ALTERNATIVE SKETCH PLANS

<table>
<thead>
<tr>
<th></th>
<th>General Plan</th>
<th>Alternative A</th>
<th>Alternative B</th>
<th>Alternative C</th>
<th>Preferred Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Units (Mid-point Density)</td>
<td>14,131</td>
<td>14,380</td>
<td>14,725</td>
<td>14,954</td>
<td>14,102 to 14,252</td>
</tr>
<tr>
<td>Very Low</td>
<td>0</td>
<td>0</td>
<td>110</td>
<td>69</td>
<td>92</td>
</tr>
<tr>
<td>Low</td>
<td>8,085</td>
<td>7,130</td>
<td>7,335</td>
<td>6,935</td>
<td>7,260</td>
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<td>Med/Low</td>
<td>0</td>
<td>1,600</td>
<td>1,500</td>
<td>2,300</td>
<td>1,300</td>
</tr>
<tr>
<td>Medium</td>
<td>5,158</td>
<td>4,900</td>
<td>5,230</td>
<td>5,200</td>
<td>5,000</td>
</tr>
<tr>
<td>Medium High</td>
<td>888</td>
<td>750</td>
<td>550</td>
<td>450</td>
<td>600</td>
</tr>
<tr>
<td>Community Center</td>
<td>2</td>
<td>2 @ 20 ac.</td>
<td>2 @ 20 ac.</td>
<td>1 @ 20 ac.</td>
<td>2 @ 20 ac.</td>
</tr>
<tr>
<td>Neighborhood Center</td>
<td>Not shown</td>
<td>4 @ .5 to 5 ac.</td>
<td>4 @ 1 to 4 ac.</td>
<td>1 @ 1 ac.</td>
<td>5 @ .5 to 4 ac.</td>
</tr>
<tr>
<td>Public/ Institutional</td>
<td>135 ac.</td>
<td>160 ac.</td>
<td>155 ac.</td>
<td>145 ac.</td>
<td>166 ac.</td>
</tr>
<tr>
<td>Parks</td>
<td>130 ac.</td>
<td>130 ac.</td>
<td>130 ac.</td>
<td>160 ac.</td>
<td>148 ac.</td>
</tr>
<tr>
<td>Open Space</td>
<td>210 ac.</td>
<td>189 ac.</td>
<td>173 ac.</td>
<td>256 ac.</td>
<td>240-285 ac.</td>
</tr>
</tbody>
</table>
6. Alternatives to the Proposed Area Plan and Projects

"The Plan would create two new neighborhood communities and focus the higher density residential development within the vicinity of these 'Community Centers'.

"The amount of land available for Business Park and Industrial development would be reduced by approximately 200 acres in favor of Residential and Commercial land use designations.

"The amount of Open space land remains approximately the same, however, it is relocated in recognition of the most valuable wetland/rare plant areas identified to date.

"The Circulation system differs from the General Plan and all other alternatives. Major arterials are removed from the most sensitive natural resource areas and a grid street system is proposed to equalize and distribute traffic within the study area. Neighborhoods would be protected by street designs that would limit road capacity and speed."

Alternative C

"In comparison to the General Plan, Alternative C reduces the amount of Medium-High Density residential land in favor of Medium-Low Density residential land. A 13.5% increase in the number of housing units, a 1,900 person increase in population is project by this alternative.

"The amount of land available for Business Park and Industrial use is reduced slightly and is designated for residential development.

"The 'Community Shopping' Center concept is abandoned in favor of one central shopping area and several medium size mixed use neighborhood centers. The Roseland Village commercial area is significantly expanded.

"With regard to open space, Alternative C proposes a significant contiguous open space in the vicinity of the south runway. It is recognized that the runway itself has little value as open space but inclusion of the south runway area could minimize impacts to adjoining natural resource areas."
"Circulation within Alternative C reveals only major streets. Local street networks would be determined during Phase II of the Area Plan process."

**Preferred Sketch Plan Alternative**

"In comparison to the General Plan, The Preferred Alternative diversifies the location of residential densities and would slightly increase the number of housing units by 121 and, correspondingly, increase the population by 279 persons.

"The Plan also increases the amount of land designated for mixed use development. In addition to the two Community Centers, mixed use developments which provide for local, community and regional needs, medium density housing and light industrial uses with no potential for creating nuisances would be permitted in the Roseland Village area. Additionally, within some office areas, a mix of office and medium density residential development would be required.

"With regard to Staff's recommendation, land designated as open space would increase by approximately 30 acres but would more accurately reflect areas with known wetland and rare plant populations as well as some areas with high potential for rare plant occurrences. The Committee's recommendation would further increase the amount of open space land by approximately 45 acres for a total of 240 to 285 acres as compared with 210 acres identified on the General Plan land use diagram."

In sum, the Preferred Sketch Plan ultimately reflected a number of planning concepts considered desirable by various Committee members and City staff, that were variously contained in each of the three sketch plans. Either of the three sketch plans was not selected because of concerns regarding the protection of wetlands, traffic and circulation, the need for neighborhood identity lack of diversity in housing density, the distribution of commercial facilities, and other planning and environmental factors.

In evaluating the Alternative Sketch Plans, the Committee and City staff noted that Alternative A seeks only to preserve the most valuable portions of natural resources. For example, it was noted that wetlands not containing rare plants may be replaced in kind through enhancement or the
creation of new wetlands if permitted by regulatory agencies (U.S. Army Corps of Engineers, California Department of Fish and Game).

Alternative B employed a "neo-traditional town plan" concept, which reflected a return to traditional development patterns of towns and villages which focus on pedestrian orientation the provision of public spaces. Alternative C was the most intense of the Sketch Plans with respect to population density (see Table 6.4-1). All residential land use categories were utilized to achieve a mix of residential densities.

It was determined that the Preferred Sketch Plan Alternative would create more desirable places to live and work. The circulation concept was judged to address regional and local circulation needs with the goal of minimizing regional traffic impacts on neighborhoods and providing community services such as shopping and recreation, within walking distance of the home. City staff found that a balance between natural resources and development would be achieved by preserving the most valuable areas such as wetlands with rare plants, on-site while allowing the mitigation of remaining wetland areas as may be determined by outside agencies. The Citizens Committee, however, stated that the Preferred Sketch Plan would result in a net loss of wetlands within the Urban Boundary.

Overall, there is not a significant difference in the number of dwelling units or potential population of the Southwest Area at buildout as envisioned under the General Plan or either of the Alternative Sketch Plans, including the Selected Alternative Plan (see Table 6.4-1). The most significant difference between the Alternatives would appear to be in the Open Space category. Alternative A would contain 189 acres of open space while The Preferred Alternative would contain from 240 to 285 acres of Open Space. This compares to 210 acres of Open Space under the General Plan and 240 to 285 acres of Open Space for the Preferred Alternative.

While the Selected Alternative (the Alternative evaluated in this EIR), contains 150 acres of Open Space, which is less Open Space envisioned under either of the Sketch Plan Alternatives, a new residential land use category has been added: Residential-Low Density/Open Space. This land use category recognizes the potential constraints associated with natural resources such as wetlands and rare plants and animals as they are generally identified in the Southwest Planning Area. Development in this category can range from one dwelling per 40 acres to as many as eight units per acre. The allowed density is dependent on the resolution of natural resource constraints either by
avoidance, clustering of development, or by mitigating for lost resources. This land use category would provide for greater flexibility in siting development on parcels with important or sensitive natural resources, and essentially compensates for a reduction in acres of the Open Space designation under the Selected Alternative.

As noted previously, the unavoidable significant impacts associated with Area Plan development include cumulative traffic congestion impacts on U.S. 101, converting a semi-rural/rural setting to an urban setting, destruction of foraging habitat, construction noise, cumulative traffic, and traffic noise impacting existing land uses. Other significant impacts can be mitigated to levels of insignificance as detailed in the respective technical sections of this EIR. However, because the level and intensity of urban development for each of the Alternative Sketch Plans approximates the level and intensity of development under the Selected Alternative, mitigation measures to reduce environmental impacts to levels of insignificance as necessary for the Selected Alternative would also be required for either of the Alternative Sketch Plans.

In addition, given the roughly equal intensity of development of the Sketch Plans, the significant and unavoidable impacts under either of the Sketch Plans would be expected to be similar (if not equal to or greater than), the significant and unavoidable impacts identified under the Selected Area Plan. From the standpoint of mitigating environmental impacts, neither of the Alternative Sketch Plans would appear to offer a significant advantage over the Selected Alternative.

6.5 ALTERNATIVE CIRCULATION PLANS

The Project incorporated the Caltrans interchange plan for US 101 because, 1) it would represent a ‘worst case’ analysis in so far as city street traffic is concerned; 2) it represents the policy of the agency which owns and maintains the facility. The interchange plan ultimately arrived at is expected to be developed cooperatively between the City of Santa Rosa and Caltrans. Caltrans motivation for making these changes is:

- To improve traffic safety by avoiding overly close spacing of interchanges. It is generally desirable to have interchange spacing of at least one mile in urban areas, especially near freeway/freeway interchanges. The Baker Avenue northbound on ramp is only about one-half mile to the Highway 12 exit.
• By limiting access to the freeway, the freeway mainline will operate better, and shorter trips will use surface streets rather than travelling a few miles on the freeway. This reduces freeway congestion, which is extremely sensitive to small increase in traffic when near congested conditions, or when stop-and-go traffic is present.

• To provide bus/carpool lanes to encourage alternatives to the single occupant auto. The lanes will save time for transit and carpool passengers, thereby acting as an inducement for them to switch modes of travel.

City Freeway Interchanges Plan

The City's Public Works Department has proposed an alternative plan for the freeway interchanges and mainline improvements along US 101 than are evaluated as part of the Project. The principal differences with the Project are as follows:

• The Project treats the new lanes on the US 101 mainline as HOV (carpool/transit) lanes in both directions during peak hours (probably 7-9 AM and 4-6 PM). The Alternative Circulation Plan would treat these as "mixed flow" lanes open to all traffic at all times.

• The Project assumes closure of the Baker Avenue ramps in both directions, and widening of Corby Avenue (to 4 lanes) from Baker to Hearn to serve traffic diverted from the closed interchange to Hearn. The Alternative Circulation Plan assumes these ramps remain open.

• The Project modifies the Hearn Avenue ramps in the southbound direction by moving the existing ramps several hundred feet north of the existing bridge. The Alternative Circulation Plan leaves the southbound ramps in the existing location but modifies the city streets nearby.

Both the Project and Alternative Circulation Plan are essentially the same with respect to the Hearn Avenue (Yolanda) northbound ramps, the Bellevue interchange, and the Todd Road interchange. There are no differences with respect to interchanges along Highway 12.
In order to test the impacts of the Alternative Circulation Plan, a separate TRANPLAN highway network was created with the different interchanges noted above. This model was run with the identical traffic demands to test what the differences in traffic volumes would be with the Project and Alternative Circulation Plan. Traffic volumes, except on (and near) the interchanges themselves, are not dramatically different between the two alternatives (see Table 6.5-1). Deletion of the Baker Avenue ramps puts more traffic on the Hearn, Bellevue, and Todd interchanges; it also diverts some traffic to city streets that would otherwise use the freeway. In effect, the Alternative Circulation Plan makes the 101 freeway more ‘accessible’ to traffic, including short trips. Traffic volumes are as much as 7,100 vehicles per day higher on US 101 with the Alternative Circulation Plan. City streets that are most affected include Santa Rosa Avenue, Corby Avenue, and to a lesser extent, Stony Point Road south of Todd. Most other changes to city street traffic volumes, except near the interchanges themselves, are small and in most cases not a significant impact.

A comparison of the weekday vehicle miles of travel (VMT) between the two alternatives indicates that the Project (Caltrans interchanges) would generate approximately 19,800 more VMT per day than the Alternative Circulation Plan. From a countywide perspective, this is a rather modest change, less than a fraction of a percent (0.14 percent) of the total VMT generated by Sonoma County trips in the year 2010. The conclusion from this analysis is that the Project land uses could be accommodated with either circulation (interchange) option. The final interchange plan will be developed cooperatively between Caltrans and the City of Santa Rosa, and will more likely be decided on factors regarding cost, funding availability, and environmental factors.

6.6 MITIGATED PROJECT ALTERNATIVE

SOUTHWEST AREA PLAN

This alternative is directed toward identifying an alternative that mitigates the significant impacts of the project to a level of insignificance more effectively than the other alternatives studied. As defined by the California Environmental Quality Act (CEQA Guidelines, Section 15126 [d](2)): "If the environmentally superior alternative is the ‘no-project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

As explained previously, the No Area Plan alternative is synonymous with the No Project alternative. Without the Area Plan, the Southwest quadrant of Santa Rosa bounded on the east and north by
### TABLE 6.5-1

**Changes in Average Weekday Traffic Volumes due to Alternative Circulation Plan**

(+ indicates increased volume due to the Alternative Circulation Plan; - indicates decreased volume)

<table>
<thead>
<tr>
<th>Road and Road Segment</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 101</td>
<td></td>
</tr>
<tr>
<td>Todd - Bellevue</td>
<td>+4,700</td>
</tr>
<tr>
<td>Bellevue - Hearn (Yolanda)</td>
<td>+2,600</td>
</tr>
<tr>
<td>Hearn - Highway 12</td>
<td>+7,100</td>
</tr>
<tr>
<td>Highway 12</td>
<td></td>
</tr>
<tr>
<td>Dutton - Stony Point Road</td>
<td>+1,800</td>
</tr>
<tr>
<td>Baker Avenue Overcrossing (Bridge) over 101</td>
<td>-5,800</td>
</tr>
<tr>
<td>Bellevue Avenue</td>
<td></td>
</tr>
<tr>
<td>Overcrossing (Bridge) over 101</td>
<td>-1,000</td>
</tr>
<tr>
<td>S. Dutton Avenue to Primrose Ave.</td>
<td>-400</td>
</tr>
<tr>
<td>Corby Avenue</td>
<td></td>
</tr>
<tr>
<td>South of Baker Avenue</td>
<td>-6,300</td>
</tr>
<tr>
<td>South of Hearn Avenue</td>
<td>-2,500</td>
</tr>
<tr>
<td>Moorland Avenue</td>
<td></td>
</tr>
<tr>
<td>North of Todd Road</td>
<td>No difference</td>
</tr>
<tr>
<td>Santa Rosa Avenue</td>
<td></td>
</tr>
<tr>
<td>North of Todd Road</td>
<td>-3,600</td>
</tr>
<tr>
<td>North of Yolanda</td>
<td>-3,500</td>
</tr>
<tr>
<td>South Wright Road</td>
<td></td>
</tr>
<tr>
<td>South of Sebastopol Road</td>
<td>-300</td>
</tr>
<tr>
<td>Stony Point Road</td>
<td></td>
</tr>
<tr>
<td>Sebastopol Rd. to Highway 12</td>
<td>-500</td>
</tr>
<tr>
<td>North of Northpoint Pkwy.</td>
<td>+100</td>
</tr>
<tr>
<td>North of Todd Road</td>
<td>-1,200</td>
</tr>
<tr>
<td>Todd Road</td>
<td></td>
</tr>
<tr>
<td>Primrose to Stony Point Road</td>
<td>-1,600</td>
</tr>
</tbody>
</table>
U.S. Highway 101 and State Highway 12 respectively, would be expected to be built out according the provisions of the General Plan. The No Area Plan Alternative would not be the Environmentally Superior Alternative because without the Southwest Area Plan, environmental review of individually proposed projects would still occur under the General Plan; and this procedure would not foster coordinated area planning and regional growth management strategies, which would detract from a certain efficiency that is possible within the planning and development process.

Reasons for not selecting either of the three alternative Sketch Plans as a Preferred Sketch Plan are as documented above under Section 6.4. Under buildout, the significant environmental impacts of the Southwest Area Plan are as explained above in Section 6.1. Because most of the impacts relating to traffic generation, cultural resources, soils and geology, drainage, water quality, vegetation and wildlife, air quality and noise can be mitigated to levels of insignificance, excluding the impacts as noted in Section 5, Unavoidable Significant Adverse Impacts, the Environmentally Superior Alternative for the Area Plan is the Area Plan itself with the recommended mitigation measures factored into the Area Plan project to create the Mitigated Area Plan Project. The mitigation measures are as explained in each of the technical section of this EIR.

PROPOSED PROJECTS

The significant impacts of the project proposals are as noted in Section 5, Unavoidable Significant Adverse Impacts. Because most impacts can be mitigated to levels of insignificance, excluding the impacts as noted in Section 5, the Environmentally Superior Alternatives for the individual projects are the projects with the recommended mitigation measures factored in to create the Mitigated Projects. The mitigation measures are as explained in each of the technical section of this EIR.

1. Section 15126 of the Guidelines for implementing the provisions of the California Environmental Quality Act provide:

"(d) Describe a range of reasonable alternatives to the project, or the location of the project, which could reasonably attain the basic objectives of the project, and evaluate the merits of the alternatives.

"(d)(5) The range of alternatives required for an EIR is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed
public participation. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."


3. This standard is sometimes relaxed where no reasonable alternatives to exist. Also, the standard may be relaxed where special ramps are provided between interchanges.

4. The northbound Hearn (Yolanda) ramps would remain in their current location, but would be widened by both the Project and the Alternative Circulation Plan.

5. The Santa Rosa Traffic Model does not consider the shift to carpools and transit that would occur as a result of the high occupancy vehicle lanes. Thus, this difference could be somewhat understated to the extent that people would shift to driving alone as a result of there being no HOV lane under the Alternative Circulation Plan.
7. THE RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

CEQA Section 21100 of the Public Resources Code states that the relationship between short-term use of the environment and the maintenance and enhancement of long-term productivity must be discussed. This discussion includes a description of the cumulative and long-term effects of the Area Plan project, Infrastructure projects, and 35 individually proposed projects within the Area Plan that would adversely affect the environment. Special attention must be given to impacts that would narrow the range of beneficial uses of the environment or pose long-term risks to health or safety. CEQA also states that the relationship between short-term uses and long-term productivity is to be evaluated to justify a proposed project in lieu of other alternative options (Article 9 of the CEQA Guidelines, Section 15126 (e)).

Long-term impacts on environmental quality are important considerations with respect to long-term land use planning within Santa Rosa, and also within Sonoma County. At the current time, site-specific detailed plans for development of most of the Plan Area have not been prepared and the current Draft Area Plan proposal as well as most individual project proposals within the Plan area are focused on relatively broadly defined, long-term land use commitments. For example, while lotting patterns for some of the project proposals are known, details relating to architecture and the physical layout and appearance of constructed elements are not known (excludes portions of Project #29, Bellevue Ranch). The proposed Area Plan and project proposal concepts have however, been reviewed in the context of long-term public needs and goals, inclusive of the Draft Area Plan goals and policies, which ultimately define project structure, once all mitigation measures to reduce or avoid adverse environmental impacts would be implemented.

Implementation of the Draft Area Plan, Infrastructure projects and 35 Area Plan project proposals would have long-term effects in the following areas: land use; traffic and circulation; visual quality and
community character; public services and utilities; water quality; biological resources; air quality and noise, as explained in the respective technical sections of this EIR. It should be noted that any form of site development for human use would tend to increase demands on public services and increase traffic, which would constitute a portion of cumulative development within Santa Rosa. However, with the mitigation measures recommended in the EIR, all long-term impacts could be reduced to less than significant or insignificant levels, with the exceptions as noted in Section 5, Unavoidable Significant Adverse Impacts.

The Area Plan and proposed projects within the Plan Area would not affect surrounding land uses from a functional standpoint. The major cumulative and long-term effects of the Area Plan project and individual project proposals would be the relative contribution to area growth with increased demand on public services, loss of grazing land, increases in noise, increased traffic volumes in the area and reduction in the extent and quality of wildlife habitat. The Area Plan project at buildout would also narrow the range of further potential beneficial uses (choices) of the environment within the Plan area. The development of land parcels constitutes a long-term use of the environment.

Long-term productivity can be related to various features of the Area Plan and 35 individual project proposals. For example, a project’s economic productivity would be determined by its financial return to the City of Santa Rosa and County of Sonoma; i.e., the money that would be spent in the region by those who would visit, live and work in the Plan area. Productivity with respect to serving the general public would be measured by project facilities available for public use such as recreation/open space, jobs provided by employment generating (commercial) land uses and related economic spin-off effects, and the availability of new and improved public roads to improve traffic flow in the area.

The Area Plan project and buildout within the Plan area would provide urbanized land uses covering the activities of several or more generations. Development within the Plan Area would generally preclude future options for other site uses in the actual areas of development.
8. IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD OCCUR FROM IMPLEMENTATION OF THE PROPOSED PROJECT

Historically, and at the current time, portions of the Plan area are used for grazing. The development of residential and commercial structures within the Plan area has converted a rural setting to a semi-rural to urban setting, particularly in the northern part of the Plan area near Highway 12 and along U.S. 101 to the east. Characteristics unique to the 3,800 acre Plan Area include access to the major transportation corridors of U.S. Highway 101 and State Highway 12, existing semi-rural to rural setting within close proximity to downtown Santa Rosa and other developed areas, scenic quality of undeveloped land, and wildlife value of existing wetlands. The Plan area also represents an important opportunity to meet a variety of public and private objectives for use of the land consistent with the Santa Rosa General Plan and Area Plan itself.

At the current time, the 3,800 acre Plan area is not being utilized to its maximum potential. Some parcels are not grazed or used for residential purposes, and there are some dilapidated buildings in the area. Implementation of the Draft Area Plan, Infrastructure projects, and 35 individual project proposals would create changes in productivity, land use and visual character as defined in the respective sections of this EIR, and would be long-term, extending well into the next century. Assuming future land development and population growth trends within Sonoma County and Santa Rosa, as well as increased competition for land as the available land areas become developed, it is doubtful that portions of the Plan area would ever be returned to a natural condition.

There would be several irreversible environmental changes which would occur because of the Area Plan project. Among these irreversible changes would be the commitment of non-renewable energy resources and of non-recyclable (by present technology) material resources used for the construction and operation of projects within the Plan area. In addition, Plan buildout would involve the
irretrievable commitment of existing and expanded infrastructure facilities such as gas, electricity, water supply and sewer services to Area Plan residents.

Visual change in the Southeast Plan area would be irreversible because of the development of structures and roads. Another irreversible environmental change associated with area Plan buildout would be increased traffic volumes on local roadways such as U.S. 101, Highway 12 and existing and new neighborhood roads in the Plan area. There would also be increased levels of noise and air emissions from project-related construction and traffic. However, with the exception of certain unavoidable adverse impacts, mitigation measures are established to mitigate all other identified impacts to levels of insignificance (see Section 5 for a description of Unavoidable, Significant Adverse Impacts).
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APPENDICES
APPENDIX A

SUMMARY OF SCOPING BY MAJOR TOPIC AREA
SOUTHWEST SANTA ROSA AREA PLAN EIR
APPENDIX A
SUMMARY OF SCOPING BY MAJOR TOPIC AREA
SOUTHWEST SANTA ROSA AREA PLAN EIR

The following is a summary of CEQA related issues raised during the Southwest Area Plan EIR scoping process, inclusive of responses to the Notice of Preparation and public scoping session held on March 2, 1993 at the Bellevue Elementary School Auditorium in Santa Rosa. Comments that repeat the substance of other comments are not duplicated. EIR section titles and numbers indicate where each issue is discussed in the Draft EIR of September 1993 as appropriate. Only CEQA related issues are discussed in the EIR.

<table>
<thead>
<tr>
<th>Comment/Issue</th>
<th>EIR Section Title/Number</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will passenger use of the Northwestern Pacific Railroad line adversely effect industrial uses?</td>
<td>Alternatives/6</td>
<td>6-8</td>
</tr>
<tr>
<td>How will the Area Plan and development affect properties west of S. Wright Road?</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-13</td>
</tr>
<tr>
<td>Discuss impacts of development on agricultural land uses?</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-11</td>
</tr>
<tr>
<td>Address the impacts of excluding the area west of S. Wright Road from the Sphere of Influence (i.e., potential buildout, effects on infrastructure improvements).</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-13</td>
</tr>
<tr>
<td></td>
<td>Growth Inducements/4</td>
<td>4-3</td>
</tr>
<tr>
<td>Discuss the potential effects on land use outside the Urban Boundary.</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-13</td>
</tr>
<tr>
<td>Describe current and planned land use designations and zoning, the number of acres in agricultural production, soil classifications and acreages.</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-6-11</td>
</tr>
<tr>
<td>Are there lands under a Williamson Act contract?</td>
<td>Land Use/3.1.2</td>
<td>3.1.2-13</td>
</tr>
</tbody>
</table>
The loss of prime agricultural land should be identified and treated as a significant environmental impact.

Need to address the compatibility impacts of new development on existing development.

Traffic

What is the timing of construction of the Bellevue Avenue interchange?

At what point would traffic become significant without the Bellevue interchange in place?

Comment on the FHWA criteria regarding one mile between interchange ramps in urban areas.

What is the timing of Caltrans improvements to U.S. 101?

What would be the impact of a light rail system along the Northwestern Pacific Railroad right-of-way?

What would be the changes in levels of service, and the implications for road improvement needs on county roads outside the Urban Boundary, i.e., to Highway 12, Stony Point Road, Petaluma Hill Road, South Santa Rosa Avenue and Llano Road?

Address connections of old neighborhoods with the new.

Address the impacts to State Route 12 and U.S. 101 mainlines, ramps and intersections in the study area.

Identify infrastructure needs including those necessary on State facilities to accommodate buildout of the Area Plan.

Include the scheduling and financing of proposed infrastructure improvements in the Draft EIR.

Describe nature and use of City's traffic model.

Include maps of existing traffic conditions today, existing conditions as contained in the traffic model, and projected future conditions as forecast by the traffic model.
<table>
<thead>
<tr>
<th>Comment/Issue</th>
<th>EIR Section Title/Number</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss whether the traffic model is considered accurate for the majority of streets which have volumes less than 30,000 per day.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-16</td>
</tr>
<tr>
<td>Explain methodology for determining level of service for intersections and corridors. Define &quot;major corridors&quot; in terms of the General Plan.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-7/10</td>
</tr>
<tr>
<td>Explain how the choice of two-hour PM peak counts relates to the General Plan goal standard.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-7</td>
</tr>
<tr>
<td>Explain the validity of the modelled forecast volume with respect to calculating level of service.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-16</td>
</tr>
<tr>
<td>List all of the physical improvements to the street network which are assumed for the SWAP EIR.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-27-33</td>
</tr>
<tr>
<td>Scheduling and financing of proposed infrastructure improvements should be included in the DEIR.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-45f</td>
</tr>
<tr>
<td>The impacts to Highway 12 and U.S. 101 mainlines, ramps and intersections which serve the study area should be included in the EIR.</td>
<td>Traffic/3.1.4</td>
<td>3.1.4-34</td>
</tr>
</tbody>
</table>

**Public Services**

<table>
<thead>
<tr>
<th>Comment/Issue</th>
<th>EIR Section Title/Number</th>
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<tbody>
<tr>
<td>What are the impacts of high density residential development on police services and police staffing?</td>
<td>Public Services/3.1.7</td>
<td>3.1.7-11-12</td>
</tr>
<tr>
<td>Will there be enough parks?</td>
<td>Public Services/3.1.7</td>
<td>3.1.7-15-16</td>
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<tr>
<td>What are the impacts on schools?</td>
<td>Public Services/3.1.7</td>
<td>3.1.7-13-15</td>
</tr>
<tr>
<td>For solid waste issues, include mitigation measures for recyclables and ways to reduce generation of yard wastes from park landscape maintenance activities.</td>
<td>Public Services/3.1.7</td>
<td>3.1.7-16</td>
</tr>
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**Utilities**

<table>
<thead>
<tr>
<th>Comment/Issue</th>
<th>EIR Section Title/Number</th>
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<tbody>
<tr>
<td>Where is all the infrastructure supposed to come from?</td>
<td>Project Description/2</td>
<td>2-8-26</td>
</tr>
<tr>
<td>Evaluate the impacts of the Area Plan on the south Park CSD sanitary sewage system capacity and recommend mitigation measures.</td>
<td>Utilities/3.1.6</td>
<td>3.1.6-5/9</td>
</tr>
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<td>Comment/Issue</td>
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<tr>
<td>Hazardous Materials</td>
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<tr>
<td>Will contamination curtail development?</td>
<td>Hazardous Materials/3.1.8</td>
<td>3.1.8-28</td>
</tr>
<tr>
<td>How deep do contamination plumes go?</td>
<td>Hazardous Materials/3.1.8</td>
<td>3.1.8-13/21</td>
</tr>
<tr>
<td>Evaluate impacts of known underground contamination sites and recommend mitigation measures.</td>
<td>Hazardous Materials/3.1.8</td>
<td>3.1.8-28/35</td>
</tr>
<tr>
<td>Address the probable transport of contaminated water via underground utility trenches to be installed to provide services to the area.</td>
<td>Hazardous Materials/3.1.8</td>
<td>3.1.8-31</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will there be a historical museum for the Naval Air Station history? Native American History? Natural environment of the area?</td>
<td>Cultural Resources/3.1.9</td>
<td>3.1.9-46</td>
</tr>
<tr>
<td>The EIR should conduct archaeological review on a project-by-project basis.</td>
<td>Cultural Resources/3.1.9</td>
<td>3.1.9-2-19, 35-47</td>
</tr>
<tr>
<td>Soils, Geology and Seismicity</td>
<td></td>
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<tr>
<td>Where is the fault line?</td>
<td>Soils, Geology and Seismicity/3.2.1</td>
<td>3.2.1-11</td>
</tr>
<tr>
<td>Hydrology</td>
<td></td>
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<tr>
<td>Water quality issues should be discussed in the EIR.</td>
<td>Hydrology/3.2.2</td>
<td>3.2.2-15</td>
</tr>
<tr>
<td>Will new homes be built high enough to avoid flooding?</td>
<td>Hydrology/3.2.2</td>
<td>3.2.2-3, 11-13</td>
</tr>
<tr>
<td>What are surface water impacts from old cars/wrecking yards, agriculture, pesticides, etc?</td>
<td>Hazardous Materials/3.1.8</td>
<td>3.1.8-28, 35, 36</td>
</tr>
<tr>
<td>How would the project affect aquifer recharge? Need to address the groundwater recharge issue.</td>
<td>Hydrology/3.2.2</td>
<td>3.2.2-16</td>
</tr>
<tr>
<td>Would a NPDES permit be required?</td>
<td>Hydrology/3.2.2</td>
<td>3.2.2-10-15</td>
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Comment/Issue                                                                 |
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<tbody>
<tr>
<td>What would impacts be on the floodplain?</td>
</tr>
<tr>
<td>How would downstream drainage improvements impact downstream areas?</td>
</tr>
<tr>
<td>Address stormwater quality impacts both during and after construction.</td>
</tr>
<tr>
<td>Address the impacts on public services associated with any proposed drainage mitigation measures. These would include impacts on City storm drain maintenance staff for both hydraulic and water quality considerations.</td>
</tr>
<tr>
<td>Vegetation and Wildlife</td>
</tr>
<tr>
<td>Determine which creeks should be preserved as wildlife corridors?</td>
</tr>
<tr>
<td>Address the impacts to candidate species.</td>
</tr>
<tr>
<td>The EIR should contain the results of comprehensive botanical and biological surveys made according to California Department of Fish and Game requirements, with multiple site visits throughout the most appropriate season for accurate identification of each species.</td>
</tr>
<tr>
<td>Address the cumulative effects of development on each parcel as it relates to the habitat and species on adjacent parcels.</td>
</tr>
<tr>
<td>The EIR should contain the results of comprehensive botanical and biological surveys to document the presence of rare or endangered plant or animal species.</td>
</tr>
<tr>
<td>Air Quality</td>
</tr>
<tr>
<td>What are cumulative impacts on air quality?</td>
</tr>
<tr>
<td>Noise</td>
</tr>
<tr>
<td>What would be the noise impacts of the railroad corridor if used for public transit?</td>
</tr>
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APPENDIX B
DESCRIPTION OF URBAN AND SUBURBAN
ARTERIAL LEVEL OF SERVICE METHOD
APPENDIX B
DESCRIPTION OF URBAN AND SUBURBAN ARTERIAL LEVEL OF SERVICE METHOD

(Chapter 11 of the Highway Capacity Manual, 1985)

(Some of this material was adapted from "The 1985 Highway Capacity Manual: An Executive Overview," by Roger P. Roess and William R. McShane," which is available from the Institute of Transportation Engineers for $15).

Urban and suburban arterials are defined as surface (non-freeway) highways having four or more lanes and signal spacings of less than two miles. Traffic conditions on such facilities are regulated by the intermediate signals, which tend to cause vehicles to form into groups or "platoons" as a result of the sequential red/green/red nature of the traffic signals. The quality of service provided to motorists is primarily a function of the quality of signal coordination ("synchronization"), and is affected by how individual signalized intersections operate along the arterial.

The method takes the results of individual signalized intersection analysis (Chapter 9 of the HCM) and adds an evaluation of the running time on arterial segments to give an overall LOS evaluation. The TRAFFIX system developed by Dowling Associates enhances this approach by including delay at all-way STOP sign controlled intersections (where present) to the total arterial delay.

The steps in the evaluation process are:

1. Define the limits of the arterial to be studied (typically two to five miles, with one to three subsections included)
2. Determine the arterial type (class) and free-flow speed (based on the posted speed limit)
3. Compute the running (that is, travel) time along the arterial
4. Compute the intersection approach delay for the specific intersection movements (see below)

5. Compute the average travel speed (miles per hour)

6. Assess the level of service.

Travel time along an arterial (Step 3) is the sum of three components: average stopped delay (D), delay due to braking and acceleration of stopped vehicles, and running time between signals (R). Braking and acceleration delay has been estimated from field studies at 0.3 of the stopped delay (D), so the total travel time is \((1.3 \times D) + (R)\). The average speed \((S)\) is equal to the distance covered divided by the total travel time. The stopped delay \((D)\) takes into account which particular movement is being considered at the intersection, e.g., the LOS in the northbound direction on an arterial street would include the average delay for the northbound through movement, not the average delay for the intersection as a whole. The delay for a particular movement may be more than, less than, or equal to the average delay for all movements at the intersection (the average delay is just a weighted average of all of the possible turning and through movements at the intersection, with the weighting done by traffic volume).

A significant feature of the Chapter 11 methodology is the recognition that arterials cover a wide range of facility types serving an equally wide range of functions. Service quality expectations also vary over this range of facilities. The methodology stratifies arterials into three classifications. The classifications are complex, and are related to functional and design categories.
APPENDIX C

ABOVE GROUND HAZARDOUS MATERIALS STORAGE FACILITIES
APPENDIX C

ABOVE GROUND HAZARDOUS MATERIALS STORAGE FACILITIES

Cal-Sensors, Inc., 60 Barham Avenue
Eric Konroff, 74 Barham Avenue
George Drady, 74 Barham Avenue
Mariani Roofing, 57 W. Barham Avenue 3 & 4
Nelson’s Alignment, 107 Barham Avenue
Norcal Truck Tire Inc., 127 W. Barham Avenue
Northcoast, 50 Barham Avenue
PA Progressive Air, 60 Barham Avenue
Pennzoil Products Company, 10 W. Barham Avenue
Real Gas & Electric, 107 Barham Avenue

RL Geise Roofing, 74 A Barham Avenue
Sirius Enterprises, 48 Barham Avenue
MacKay & Somps, 1724 A Corby Avenue
Shell-Corby Avenue Shell, 2575 Corby Avenue
Burbank Mechanical, 1603 Hampton Way
Chris’ Plumbing and Heating, 1524 Hampton Way
L&L Fabricators, 1596 Hampton Way
Randall Nutritional Products, 1595 Hampton Way
Swissco., 300 I.W. Robles Avenue
Yellow Cab, 588 Roseland Avenue

ACME Auto Wreckers, Inc., 1885 Sebastopol Road
Auto Express, 1580 Sebastopol Road, B2
Barmen and Tannen PR, 1611 Sebastopol Road
Batt’s Tip Top Service, Inc., 3904 Sebastopol Road
Beacon Station # 1-489, 921 Sebastopol Road
Bertka Hydraulics, Inc., 1580 Sebastopol Road, B3
Blue Star Gas, 3939 Sebastopol Road
Bob Westcott’s Auto & Truck, 1569 Sebastopol Road
Cal Wood Stoves, 1290 Sebastopol Road
Continental Baking Company, 1840 Sebastopol Road

Dowdall Glass Company, 990 Sebastopol Road
Dusty’s Transmission, 1710 Sebastopol Road
Forward Automotive Service, 1511 Sebastopol Road
McCann Machine & Manufacturing, 1075 Sebastopol Road
National Auto Recovery, 1520 Sebastopol Avenue
Northern California Glass, 617 Sebastopol Road
Precision Tune, 580 Sebastopol Road
Roseland Paint, 1160 Sebastopol Road
Stakey Brothers, Inc., 1289 Sebastopol Road
Taylor Bus Service, 1175 Sebastopol Road

Triple A Tire, 1124 Sebastopol Road
Unocal, 370 Sebastopol Road
The Burke Company, 3401 Standish Avenue
Empire Waste Management, 3400 Standish Avenue
Georgia-Pacific Corporation, 3417 Standish Avenue
Santa Rosa Diesel, Inc., 3649 Standish Avenue
Hybrinetics, Inc., 225 Sutton Place
The West Company, 285 Sutton Place
JEMCO, 385 Todd Road
Pacific Supply, 879 N. Wright Road
APPENDIX D

RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHWEST SANTA ROSA AREA PLAN
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RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHWEST SANTA ROSA AREA PLAN

PLANTS

*Arctostaphylos canescens* var. *sonomensis*
Sonoma Manzanita
STATUS: -/-/List 3
HABITAT: Chaparral
BLOOM TIME: January-March
HABIT: perennial
NOTES: Known from Humboldt, Mendocino, Lake, and Sonoma Counties. Reaches its southernmost distribution point in Sonoma County. Suitable habitat is not present in the SWAP.

*Arctostaphylos stanfordiana* var. *repens*
Rincon Ridge Manzanita
STATUS: -/-/List 1B
HABITAT: Chaparral
BLOOM TIME: February-April
HABIT: perennial
NOTES: Known primarily from Rincon Ridge, northeast of Santa Rosa. Occurs on red rhyolite soils along Alta Vista Avenue between Brush Creek Road and Montecito Heights. Believed extirpated at historic occurrences near the corner of Los Olivos and Brush Creek Roads at the east base of Rincon Ridge, and at the Fountaingrove Ranch Development off Parker Hill Road. Suitable habitat is not present in the SWAP.

*Astragalus breweri*
Brewer's Milk Vetch
STATUS: -/-/List 3
HABITAT: Chaparral, Foothill Woodland, Valley Grassland
BLOOM TIME: April-May
HABIT: annual
NOTES: Known from restricted locations in the inner North Coast Ranges from southern Mendocino County to Marin County, and east to Yolo County. Often on ultramafic soils. Suitable habitat is not present in the SWAP.
**Blennosperma bakeri**  
Baker's Stickyseed  
STATUS: FE/CE/List 1B  
HABITAT: Vernal Pools  
BLOOM TIME: March-April  
HABIT: annual  
NOTES: In the SWSR Plan Area occurs south of Pyle Avenue adjacent to the southwest portion of the former Santa Rosa Air Center (proposed project #30).

**Ceanothus confusus**  
Rincon Ridge Ceanothus  
STATUS: C2/-/List 1B  
HABITAT: Chaparral, Foothill Woodland, Closed-cone Coniferous Forest  
BLOOM TIME: February-April  
HABIT: perennial mat-forming shrub  
NOTES: Known from volcanic or serpentine soils in Lake, Mendocino, Napa, and Sonoma Counties. Historically abundant in some areas of Rincon Ridge, along Los Olivos Road, northeast of Santa Rosa, prior to early residential development. Historic occurrence in the vicinity of Rockridge Lane, off Montecito Road, north of Santa Rosa. Possibly extirpated at the site of the Fountaingrove Ranch development near the top of Parker Hill Road. Although little evidence of the species has been located in residential areas in recent years, several occurrences still exist along the upper ridges. Suitable habitat is not present in the SWAP.

**Ceanothus divergens**  
Calistoga Ceanothus  
STATUS: C2/-/List 1B  
HABITAT: Chaparral (ultramafic)  
BLOOM TIME: February-March  
HABIT: perennial  
NOTES: Occurs in Lake, Napa, and Sonoma Counties. In Sonoma County, it is known from Annadel State Park and isolated occurrences in the Hood Mountain range, Franz Valley and north and east to Mt. St. Helena and the Calistoga area. In the Santa Rosa Area, it is known from occurrences on Rincon Ridge, 3.5 miles north of Santa Rosa, and from approximately one mile southwest of Melita. Suitable habitat is not present in the SWAP.

**Ceanothus sonomensis**  
Sonoma Ceanothus  
STATUS: C2/-/List 1B  
HABITAT: Chaparral  
BLOOM TIME: February-April  
HABIT: perennial  
NOTES: Restricted to Sonoma County with the exception of one known population in Napa County. Occurs in the Hood Mountain Range and Annadel State Park. Except for population occurrences in State and county parks, this species is threatened throughout its entire range by residential development and vineyard expansion. Suitable habitat is not present in the SWAP.
**Delphinium variegatum** (white form)

*White Delphinium*

**STATUS:** none  
**HABITAT:** Open grassy hills, valley grasslands, foothill woodlands  
**BLOOM TIME:** April-May  
**HABIT:** perennial  
**NOTES:** The normal color of this species is light blue to rich blue-purple sepals, upper petals yellow or white sometimes tinged with violet, lower petals violet or rarely white. The local population is one of six known populations occurring in Napa and Sonoma Counties. The rarity of the color form and the evolutionary history occurring in the population warrant preservation in its natural habitat for further study.

**Downingia humilis**

*Dwarf Downingia*

**STATUS:** 3C/-/List 1B  
**HABITAT:** Vernal Pools, Foothill Woodland & Grassland (mesic sites)  
**BLOOM TIME:** March-May  
**HABIT:** annual  
**NOTES:** Known to occur in several counties, but restricted to habitat that is decreasing throughout the species range.

**Fritillaria liliacea**

*Fragrant Fritillary*

**STATUS:** C2/-/List 1B  
**HABITAT:** Coastal Scrub, Grassland (often serpentine)  
**BLOOM TIME:** February-April  
**HABIT:** perennial  
**NOTES:** Ranges from Sonoma County south to Monterey County. Several historic locations in Sonoma County have been destroyed by loss of habitat. One known population still occurs in a scenic easement south of Park Trail Drive and the east side of Summerfield Road, within the City of Santa Rosa boundaries. Another population is known in Annadel State Park, east of Santa Rosa.

**Lasthenia burkei**

*Burke's Goldfields*

**STATUS:** FESE/List 1B  
**HABITAT:** Vernal pools, mesic meadows  
**BLOOM TIME:** April-May  
**HABIT:** annual  
**NOTES:** Historically known from one location in southern Mendocino County (now considered extirpated), two locations in south Lake County, and several locations in central Sonoma County. Distributed from Windsor south through the western Santa Rosa Plains. Several populations in the western Santa Rosa Plains and Windsor have been destroyed following transplant or seed transfer mitigation to another site. Known to occur north of State Highway west of Wright Road and southwest of Preakness Court.

**Lilium rubescens**

*Chaparral Lily, Redwood Lily*

**STATUS:** -/-/List 4
HABITAT: Chaparral, Coniferous Forest, Mixed Evergreen Forest
BLOOM TIME: June-July
HABITAT: perennial
NOTES: Occurs in the Coast Ranges south to Santa Cruz County. Known colonies near the City of Santa Rosa include a site west of Hood Mountain and in Annadel State Park. Suitable habitat is not present in the SWAP.

*Limnanthes vinculans*
Sebastopol Meadowfoam
STATUS: FE/SE/List 1B
HABITAT: Vernal pools, mesic meadows, swales, and marshy areas
BLOOM TIME: March-April
HABITAT: annual
NOTES: Occurs in southern Sonoma County, primarily in the Laguna de Santa Rosa watershed. South of Santa Rosa, colonies of thousands of plants observed in vernal pools in wet meadows north and south of Hern Avenue approximately 2000 feet east of Santa Rosa Avenue. Seriously threatened by development, off-road vehicles, and agricultural land use changes, including wastewater irrigation. Occurs in several locations and proposed project sites in the SWAP.

*Lomatium repostum*
Napa Lomatium
STATUS: -/-/List 4
HABITAT: Chaparral, Foothill Woodland, Closed-cone Coniferous Forest
BLOOM TIME: April-May
HABITAT: annual
NOTES: Found in chaparral in Lake, Napa, Solano, and Sonoma Counties. Occurs in several areas in the Hood Mountain Range. Historic locations were known from Rincon Ridge near Parker Hill Road but have not been relocated. Suitable habitat is not present in the SWAP.

*Navarretia plieantha*
Many-flowered Navarretia
STATUS: C1/SE/List 1B
HABITAT: Vernal Pools, peaty lake margins
BLOOM TIME: May-June
HABITAT: annual
NOTES: Known only from Lake and Sonoma Counties. Historically known to occur in Bennett Mountain Lake (Ledson Marsh) in Annadel State Park, but has not been observed there for several years. Two other locations are known in Sonoma County north of the City of Santa Rosa boundary. This species is extremely rare and its habitat is vulnerable to any land use change.

*Pleiopogon davyi*
Davy's Semaphore Grass
STATUS: -/-/List 4
HABITAT: Wet meadows
BLOOM TIME: 3 4 5
HABITAT: perennial
NOTES: The Pleuro pogon davyi specimens that were determined by Charles Patterson, Plant Ecologist, as occurring in the western Santa Rosa Plains were incorrectly identified (C. Patterson pers. com. 11/18/93 with B. Guggolz). Pleuro pogon davyi is not known to occur in Sonoma County, although it is frequently misidentified because of its similarity to Pleuro pogon californicus, a species common to the western Santa Rosa Plains, which was identified by EIR preparers within the Southwest Plan area (Appendix E-6).

**Fogogyne douglasii ssp. parvi flora**

**Douglas' Fogogyne**

**STATUS:** C2-/List 3

**HABITAT:** Dry beds of vernal pools, Grassland, Foothill Woodland, Freshwater Marshes

**BLOOM TIME:** May-July

**HABIT:** annual

**NOTES:** Habitat for this species in Sonoma County is seriously threatened by development in the few known locations remaining. Several historical sites in the Laguna de Santa Rosa watershed were destroyed by agricultural land use changes during the past decade. Occurs in several locations and proposed project sites in the Southwest Area.

**Ranunculus lobbii**

**Lobb's Aquatic Buttercup**

**STATUS:** -/-/List 4

**HABITAT:** Vernal Pools, mesic grassland and foothill woodland

**BLOOM TIME:** February-April

**HABIT:** annual

**NOTES:** The species ranges extensively over several Bay Area counties, but is dependent on wetland habitat which is decreasing throughout the state. Several populations have been observed in the western Santa Rosa plains, however, some of these have been destroyed by recent urban development. Occurs in several locations in and adjacent to the west central portion of the former Santa Rosa Air Center (proposed project #30).

**Trifolium amoenum**

**Showy Indian Clover**

**STATUS:** C2-/List 1A

**HABITAT:** Grassland (swales, rich fields)

**BLOOM TIME:** April-June

**HABIT:** annual

**NOTES:** Found in serpentine soils in open sunny sites from sea level to 200 feet elevation. Several occurrences were known in Sonoma County, including an occurrence at Wright School on Price Avenue west of Wright Road. Recent field surveys of precise locations have failed to reconfirm the species at historical locations, and in most of the area searched, habitat has been altered by agricultural use. Thought to be extinct throughout its range, last seen in 1969.

**BIRDS**
**Ardea herodias**

**Great Blue Heron**

**STATUS:** -/1* (rookery site) BL 1980-81, CS 1986

**HABITAT:** Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas such as marshes, lake margins, tide-flats, rivers and streams, wet meadows.

**NOTES:** Scattered adults observed foraging along drainages and in wetlands habitats in the southern area of the abandoned Naval Air Center during surveys for this report. Suitable rookery or nesting habitat were not identified anywhere on the Air Station but may be available somewhere within SWAP boundaries.

**Casmerodius albus**

**Great Egret**

**STATUS:** -/1* (rookery site)

**HABITAT:** Feeds in shallow water and along shores of estuaries, lakes, ditches, and slow-moving streams, salt ponds, mudflats and in irrigated croplands and pastures. Eats mainly fishes, amphibians, snakes, snails crustaceans and some small mammals. Nests in large trees at a height of 20-40 feet. Nests usually near water.

**NOTES:** Scattered adults observed foraging along drainages and in wetlands habitats in the southern area of the abandoned Naval Air Center during surveys for this report. Suitable rookery or nesting habitat were not identified anywhere on the Air Station but may be available somewhere within SWAP boundaries.

**Elanus caerulea**

**Black-shouldered Kite**

**STATUS:** -/1*  

**HABITAT:** Low rolling foothills/valley margins with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Open grasslands, meadows or marshes for foraging close to isolated, dense-topped trees for nesting and perching.

**NOTES:** Habitat suitable for the maintenance and reproduction of this species is present within project boundaries. Birds were observed foraging at several locations in the SWAP area during surveys for this report. Suitable habitat for foraging and nesting are present on and near the abandoned Naval Air Center. A nesting pair was observed in the southwestern area of the Air Center on two occasions (May 13 and June 7, 1993) during surveys for this report. While the nest site was not located, courtship behavior and the timing of the presence of these birds indicated that nesting was underway in the area.

**Accipiter striatus**

**Sharp-shinned Hawk**

**STATUS:** -/1/CSC, BL 1972-86

**HABITAT:** All types of vegetation but prefers riparian. Uses mixed-conifer, ponderosa pine and black oak.

**NOTES:** Habitat suitable for the maintenance and reproduction of this species is present within project boundaries. A female of this species was observed foraging between the eastern boundary of the abandoned Naval Air Center and the FEMA site during surveys for this report. Her activities at this time of the surveys for this report (May 13, 1993 indicate strongly that this species is nesting within project boundaries.
Buteo lineatus\footnote{2}

**Red-shouldered Hawk**

**STATUS:** -/-/ABL 1972-86

**HABITAT:** Year-long resident in the western Sierra Nevada foothills and the Central Valley in low elevation riparian woodlands especially where interspersed with marshlands. Forages and nests in early successional stages of valley-foothill hardwood and conifer habitats.

**NOTES:** Observed at several locations within the SWAP during field surveys for this report. Marginal nesting habitat is available for this species near the old Naval Air Station and FEMA sites.

*Aquila chrysaetos*

**Golden Eagle**

**STATUS:** -/-/CSC

**HABITAT:** Rolling foothills, coast range terrain, sage juniper flats or desert habitats chiefly in the upper Sonoran and transition life zones.

**NOTES:** Species occasionally reported to forage in the SWAP. Reported to hunt in areas near the abandoned Naval Air Center. None of this species observed during surveys for this report.

*Falco peregrinus anatum*

**American Peregrine Falcon**

**STATUS:** E/E/-

**HABITAT:** Riparian areas and coastal and inland marshes important habitats year-round but especially for foraging during nonbreeding seasons.

**NOTES:** Species occasionally reported to forage in the SWAP. Reported to hunt in areas near the abandoned Naval Air Center. None of this species observed during surveys for this report.

*Tyto alba\footnote{2}*

**Common Barn Owl**

**STATUS:** -/-/BL 1972-81, CS 1982-86

**HABITAT:** Open grassland, chapparal, deciduous riparian and wet meadows.

Very common on the site during the late summer. No nests or roosts located on site to date. Status to be reported in final WHMP report.

**NOTES:** The availability of numerous nesting sites in open, abandoned buildings and barns and the rich diversity of rodent prey species make the SWAP an excellent area for this species. Birds of this species were observed in the Kodiak hangar on the abandoned Naval Air Center. Owl pellets found at several locations indicated the widespread distribution of this species within the SWAP.

*Asio flammeus\footnote{2}*

**Short-eared Owl**

**STATUS:** -/-/CSC (Breeding); ABL 1976-1986

**HABITAT:** Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches and tall grass needed for nesting and daytime seclusion. Nests on dry ground in depression concealed in vegetation.

**NOTES:** Birds have been reported by a falconer in 1993 to be foraging in grassland habitats on the abandoned Naval Air Center near along the margins of the runways. None of this diurnal species of owl was observed during surveys for this report.
**Athene cunicularia**

*Burrowing Owl*


HABITAT: Open, dry, nearly or quite level grassland; prairie and desert floors. Subterranean nester dependent on large burrowing mammals, most notably the California ground squirrel, for nest sites.

NOTES: Birds have been recently observed near the center of the abandoned Air Station near along the margins of the runways. An "accidental take" of an adult bird was reported during activities by a falconer on the site in 1993. None of this species was observed during surveys for this report, however, the extremely high grass resulting from the heavy rains of this winter would make detection of this small owl very difficult.

**Strix occidentalis caurina**

*Northern Spotted Owl*

STATUS: T/-/BL 1980-86

HABITAT: Generally found in densely forested, shady canyons and dense conifer and/or oak forest usually multilayered and with a high degree of canopy closure. Nests sites are usually located on lower slopes of canyons near a source of water. Hunts from elevated perches.

Prey items include small mammals, birds and insects.

NOTES: Nesting territories of this species are reported to occur in Santa Rosa and Kenwood USGS Quadrangles in Sonoma County. Precise locational information not available in the CNDDB. Suppressed information on the location and numbers of breeding pairs is maintained in the CDFG 1991 Spotted Owl Database. Habitats suitable for the maintenance and reproduction of this species are not present within SWAP boundaries and none of this species was observed during surveys for this report.

**Larus californicus**

*California Gull*

STATUS: -/-/CSC

HABITAT: Winter visitant to coastal and interior lowlands during the nonbreeding season. Omnivorous. Adults roost in large concentrations along shorelines, in landfills, pastures and on islands.

NOTES: Scattered individuals observed near the abandoned Naval Air Center during field surveys. This species may utilize the site and its freshwater habitats for foraging.

**Lanius ludovicianus**

*Loggerhead Shrike*

STATUS: -/-/ABL 1972-86

HABITAT: Year-round residents of lowlands and foothills throughout much of California. Prefers open habitats with scattered shrubs, trees, fences, or other lookout posts. Highest densities occur in open-canopied, valley-foothill hardwood, hardwood-conifer and riparian habitats. Feeds on insects, small birds, mammals and reptiles but amphibians, fish, carrion and various invertebrates are also taken.

NOTES: Observed at several locations within the SWAP during field surveys for this report. Nesting habitat is available for this species near the old Naval Air Station and FEMA sites and at a number of other locations within the SWAP were individuals were observed. The presence of these birds in the SWAP at the time of the wildlife surveys and some of the behavioral activities of the birds indicated strongly that nesting was occurring within project boundaries.
**Coccyzus Americanus occidentalis**
Western Yellow Billed Cuckoo
STATUS: C3B/E/BL 1972-81, 1986
HABITAT: Nests in extensive areas of riparian jungles of willow, often mixed with cottonwoods, blackberry, nettles or wild grape.
NOTES: The dense willow thicket, riparian habitat, of the type required by this species for maintenance and reproduction, is no longer present within SWAP boundaries. None of this was species observed during surveys for this report. The nearest and most recently reported occurrence of this rare bird was at Copeland Creek, east of Lichau Road near Sonoma State College in 1975. It is extremely unlikely that this bird will again be found in the SWAP area.

**MAMMALS**

**Plecotus townsendii townsendii**
Pacific Western Big-eared Bat
STATUS: C2-/CSC
HABITAT: Mesic habitats in all but subalpine and alpine regions. Needs water. Gleans from brush or trees along habitat edges.
NOTES: Roosting habitat in old buildings and bars is available at various locations within SWAP boundaries. No evidence of the use of buildings or barns for roosting by bats was noted during surveys for this report. Intensive, timely searches would be necessary to positively identify the presence of this species on the project site.

**REPTILES AND AMPHIBIANS**

**Ambystoma tigrinum californiense**
California Tiger Salamander
STATUS: C2-/CSC
HABITAT: Breed and lay eggs in vernal pools. Open grassland habitats at elevations of less than 1,000 feet. Requires large numbers of rodent burrows and other subterranean refugia.
NOTES: Suitable, seasonal wetlands habitats and vernal pools are present at a number of locations throughout the SWAP. While many of these seasonal wetlands have been heavily damaged by agriculture and other developments, remnant habitats suitable for breeding are available within the SWAP and viable populations of CTS have persisted. Adults and larvae were found during searches and seining of seasonal wetlands habitats during surveys for this report. These are discussed in more detail in the preceding SWAP report.

**Rana aurora draytoni**
California Red-legged Frog
STATUS: C1-/CSC
HABITAT: Quiet pools of steams, marshes and occasionally ponds in coast ranges below 4,000 feet. Prefers shorelines with extensive vegetation. Red-legged frogs are generally absent from ponds and streams occupied by bullfrogs (*Rana catesbeiana*) which prey upon them.
NOTES: Habitats of type required by this species are available along portions of the Colgan Creek Flood Control Channel, Roseland Creek and its unnamed tributaries and other
isolated, remnant aquatic habitats within the SWAP. No larvae or adults of this species were found during searches and seining of aquatic habitats during surveys for this report.

Scaphiopus hammondii hammondii
Western Spadefoot Toad
STATUS: 2R/-/CSC
HABITAT: Occurs primarily in grassland situations, but occasional populations also occur in valley foothill hardwood woodlands. Rarely found on the surface. Most of the year is spent in underground burrows. Breeding and egg laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains.
NOTES: None of this species are reported in the CNDDB to occur in the Santa Rosa area. John Brode of the California Department of Fish and Game could not find any record of sightings of this species in the Santa Rosa area. Marginal habitats for this species are available near seeps and ponds within SWAP boundaries. The presence of predatory fish in some ponds precludes their use for breeding by this species. Searches and seining of aquatic habitats during field surveys for this report failed to establish the presence adults or larvae of this toad within SWAP boundaries.

Clemmys marmorata marmorata
Western Pond Turtle
STATUS: C2/-/CSC
HABITAT: Preferred habitats include ponds, marshes, rivers, streams and irrigation ditches with rocky or muddy bottoms. Food is mainly aquatic plants, insects, and carrion. Watercress, cattails and lillies are used for cover.
NOTES: Marginal habitats of type required by this species are available within SWAP boundaries. None of this species was found during searches of aquatic habitats and farm ponds, located within SWAP boundaries, during surveys for this report.

INVERTEBRATES

Ischnura gemina
San Francisco Fork-tailed Damselfly
STATUS: C2/-/
HABITAT: Completes its lifecycle in and near dense emergent vegetation on the margins of freshwater ponds, slow moving creeks, drainage ditches and seasonal wetlands at low elevations around San Francisco Bay region.
NOTES: Preliminary searches for this species and likely habitats for its existence were performed for this report. Some, marginal habitats were found within SWAP boundaries but while adults and larvae of related species were identified none of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.

Hydrochora rickseckeri
Ricksecker’s Water Scavenger Beetle
STATUS: C2/-/
HABITAT: Occurs in and near dense emergent vegetation on the margins of freshwater ponds, slow moving creeks, drainage ditches and seasonal wetlands at low elevations. Feeds largely on decaying animal and plant matter, but are sometimes predaceous upon other insects.
NOTES: Habitats of the type required by this species are present at a number of locations within SWAP boundaries. Preliminary searches were performed during surveys for this report by biologists familiar with the identification of this species and its likely habitats. None of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.

*Linderiella occidentalis*
California linderiella
STATUS: 1R/-/-
HABITAT: Completes its lifecycle in vernal pools, seasonal wetlands, drainage ditches and at low elevations around San Francisco Bay region.
NOTES: Suitable seasonal wetlands habitat of the type required by this species is present at a number of locations within SWAP boundaries. Preliminary searches were performed during surveys for this report by biologists familiar with the identification of this species and its likely habitats. None of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.

*Branchinecta lynchi*
Vernal Pool Fairy Shrimp
STATUS: 1R/-/-
HABITAT: Completes its lifecycle in vernal pools, seasonal wetlands, drainage ditches and at low elevations around San Francisco Bay region.
NOTES: Suitable seasonal wetlands habitat of the type required by this species is present at a number of locations within SWAP boundaries. Preliminary searches were performed during surveys for this report by biologists familiar with the identification of this species and its likely habitats. None of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.

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Sources:

California Natural Diversity Data Base (CNDDDB) current update June 10, 1993. Computer printout for four surrounding 7.5 minute quadrangle USGS maps in the project region (Santa Rosa, Sebastopol, Cotati, Two Rock).

Hunter, B., Regional Manager, Region 3, California Department of Fish and Game, "FEMA" Properties - Old Naval Air Center Southwest Santa Rosa, Sonoma County, Correspondence dated June 16, 1992.

Hunter, B., Regional Manager, Region 3, California Department of Fish and Game, Santa Rosa High-Frequency Radio Station Site, Correspondence dated April 22, 1993.


1 = Habitat and/or resources required for reproduction/maintenance present within project boundaries.
STATUS = Federal/State/Other (CNPS R-E-D codes)

Federal Status Codes

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State of California Status Codes

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Other Status Codes

Plants: California Native Plant Society Inventory Lists

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<td>1B</td>
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<td>2</td>
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<tr>
<td>3</td>
<td>Plants about which more information is needed - a review list</td>
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<tr>
<td>4</td>
<td>Plants with limited distributions - a watch list</td>
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Plants: California Native Plant Society R-E-D codes

Rarity

1 - Rare, but potential for extinction is low
2 - Confined to several populations, or one extended population
3 - Limited to a few highly restricted populations or present in very small numbers

Endangerment

1 - Not endangered
2 - Endangered in a portion of its range
3 - Endangered throughout its range

Distribution

1 - More or less widespread outside California
2 - Rare outside California
3 - Endemic to California
Animals and Misc:

CSC = California Department of Fish and Game "Species of Special Concern"
* = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range.
- Population(s) in California that may be peripheral to the major portion of a taxon’s range, but which are threatened with extirpation in California.
- Taxa closely associated with habitat that is declining in California (e.g. wetlands, riparian, old growth forest, desert aquatic systems, native grasslands.)

FSS = Bureau of Land Management and U.S. Forest "Sensitive Species"
BL = Audubon Society Blue List of birds of special concern
APPENDIX E

COMMON, POTENTIAL AND OBSERVED
PLANT AND WILDLIFE SPECIES IN THE
SOUTHWEST SANTA ROSA PLAN AREA
SONOMA COUNTY, CALIFORNIA
# APPENDIX E
COMMON, POTENTIAL AND OBSERVED PLANT AND WILDLIFE SPECIES IN THE SOUTHWEST SANTA ROSA PLAN AREA SONOMA COUNTY, CALIFORNIA

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92244 E-1
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<td>Soft Chess</td>
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**TOTAL** 128

**MAMMALS**

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<tr>
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<td>Yuma Myotis</td>
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<td>Long-eared Myotis</td>
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92244 E-6
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<thead>
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<tr>
<td>Fringed Myotis</td>
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<tr>
<td>Red Bat</td>
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<tr>
<td>Hoary Bat</td>
<td><em>L. cinereus</em></td>
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<tr>
<td>Townsend's Big-eared Bat</td>
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<tr>
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<td><em>Tadarida brasiliensis</em></td>
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<td>Western Mastiff Bat</td>
<td><em>Eumops perotis</em></td>
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<tr>
<td>Raccoon</td>
<td>+ <em>Procyon lotor</em></td>
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<td>Bobcat</td>
<td><em>Lynx rufus</em></td>
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<tr>
<td>Feral House Cat</td>
<td>+ <em>Felis domesticus</em></td>
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<tr>
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<td>+ <em>Urocyon cinereoargenteus</em></td>
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<tr>
<td>Red Fox</td>
<td>+ <em>Vulpes vulpes</em></td>
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<tr>
<td>Coyote</td>
<td>+ <em>Canis latrans</em></td>
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<td>Badger</td>
<td><em>Taxidea taxus</em></td>
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<tr>
<td>Striped Skunk</td>
<td>+ <em>Mephitis mephitis</em></td>
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<tr>
<td>Spotted Skunk</td>
<td><em>Spilogale putorius</em></td>
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<tr>
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<td>+ <em>Spermophilus beecheyi</em></td>
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<td>Sonoma Chipmunk</td>
<td><em>Tamias sonomae</em></td>
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<tr>
<td>Western Gray Squirrel</td>
<td><em>Sciurus griseus</em></td>
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<tr>
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<tr>
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<td><em>Reithrodontomys megalotis</em></td>
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<td>Deer Mouse</td>
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<td>Pinon Mouse</td>
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<td>Dusky-footed Wood Rat</td>
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<td>California Vole</td>
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<tr>
<td>Norway Rat</td>
<td><em>Rattus norvegicus</em></td>
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<tr>
<td>House Mouse</td>
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<tr>
<td>Blacktail Jackrabbit</td>
<td>+ <em>Lepus californicus</em></td>
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<td>Brush Rabbit</td>
<td><em>Sylvilagus bachmani</em></td>
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<tr>
<td>Mule Deer</td>
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**TOTAL** 14

**REPTILES AND AMPHIBIANS**

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<td><em>Taricha granulosa</em></td>
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<td>Red-bellied Newt</td>
<td><em>T. rivularis</em></td>
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<td>Ensatina</td>
<td><em>Ensatina eschscholtzi xanthoptica</em></td>
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<tr>
<td>California Slender Salamander</td>
<td>+ <em>Batrachoseps attenuatus</em></td>
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<td>Scientific Name</td>
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<tr>
<td>Arboreal Salamander</td>
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<td>Bufo boreas</td>
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<tr>
<td>Pacific Treefrog</td>
<td>+ Hyla regilla</td>
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<tr>
<td>Red-legged Frog</td>
<td>Rana aurora</td>
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<td>Foothill Yellow-legged Frog</td>
<td>R. boylei</td>
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<td>Bullfrog</td>
<td>R. catesbeiana</td>
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<td>Western Pond Turtle</td>
<td>Clemmys marmorata marmorota</td>
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<tr>
<td>Western Fence Lizard</td>
<td>+ Sceloporus occidentalis</td>
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<td>Sagebrush Lizard</td>
<td>S. graciosus</td>
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<tr>
<td>Western Skink</td>
<td>Eumeeces skiltonianus</td>
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<tr>
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<td>+ Gerrhonotus multicarinatus</td>
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<td>G. coeruleus</td>
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<tr>
<td>Rubber Boa</td>
<td>Charina bottae</td>
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<tr>
<td>Pacific Gopher Snake</td>
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<td>Common Kingsnake</td>
<td>+ Lampropeltis getulus</td>
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**BIRDS**

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<td>+ Butorides striatus</td>
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<td>Egreta thula</td>
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<tr>
<td>Mallard</td>
<td>+ Anas platyrhynchos</td>
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<td>Turkey Vulture</td>
<td>+ Cathartes aura</td>
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<tr>
<td>Black Shouldered Kite</td>
<td>+ Elanus leucurus</td>
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<td>Cooper's Hawk</td>
<td>Accipiter cooperi</td>
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<td>Sharp-shinned Hawk (w)</td>
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<tr>
<td>Red-tailed Hawk</td>
<td>+ B. jamaicensis</td>
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<td>Red-shouldered Hawk</td>
<td>+ B. lineatus</td>
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<td>Swainson's Hawk</td>
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<td>American Kestrel</td>
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<td>Merlin (w)</td>
<td>F. columbarius</td>
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<td>+ <em>Zenaidura macroura</em></td>
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<td>+ <em>Charadrius vociferus</em></td>
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<td>+ <em>Calyptr anna</em></td>
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<td>+ <em>Colaptes auratus</em></td>
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<td><em>Dryocopus pileatus</em></td>
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<tr>
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<td>+ <em>Melanerpes formicivorus</em></td>
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<td><em>M. lewis</em></td>
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<td>Hairy Woodpecker</td>
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<td><em>Eremphila alpestris</em></td>
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<tr>
<td>Barn Swallow (s)</td>
<td>+ <em>Hirundo rustica</em></td>
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<tr>
<td>Cliff Swallow (s)</td>
<td>+ <em>Petrochelidon pyrrhonota</em></td>
</tr>
<tr>
<td>Violet-green Swallow</td>
<td>+ <em>Tachycineta thalassinina</em></td>
</tr>
<tr>
<td>Tree Swallow</td>
<td><em>Iridoprocne bicolor</em></td>
</tr>
<tr>
<td>Northern Rough-winged Swallow (s)</td>
<td>+ <em>Stelgidopteryx ruficollis</em></td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Purple Martin (s)</td>
<td>Progne subis</td>
</tr>
<tr>
<td>Scrub Jay</td>
<td>+ Apherocoma coerulescens</td>
</tr>
<tr>
<td>Stellar's Jay</td>
<td>+ Cyanocitta stelleri</td>
</tr>
<tr>
<td>Yellow-billed Magpie</td>
<td>* Pica nutalli</td>
</tr>
<tr>
<td>American Crow</td>
<td>+ Corvus brachyrhynchos</td>
</tr>
<tr>
<td>Common Raven</td>
<td>+ C. corax</td>
</tr>
<tr>
<td>Chestnut-backed Chickadee</td>
<td>Parus rufescens</td>
</tr>
<tr>
<td>Common Bushtit</td>
<td>+ Psaltriparus minimus</td>
</tr>
<tr>
<td>Plain titmouse</td>
<td>P. inornatus</td>
</tr>
<tr>
<td>White-breasted Nuthatch</td>
<td>Sitta carolinensis</td>
</tr>
<tr>
<td>Red-breasted Nuthatch (w)</td>
<td>S. canadensis</td>
</tr>
<tr>
<td>Brown Creeper</td>
<td>Certhia americana</td>
</tr>
<tr>
<td>Wrentit</td>
<td>Chamaea fasciata</td>
</tr>
<tr>
<td>Bewick's Wren</td>
<td>+ Thryanames bewickii</td>
</tr>
<tr>
<td>House Wren</td>
<td>Trogodytes aedon</td>
</tr>
<tr>
<td>Winter Wren (w)</td>
<td>T. troglodytes</td>
</tr>
<tr>
<td>Marsh Wren</td>
<td>Cistothorus palustris</td>
</tr>
<tr>
<td>Rock Wren</td>
<td>Salpinctes obsoletus</td>
</tr>
<tr>
<td>Northern Mockingbird</td>
<td>+ Mimus polyglottos</td>
</tr>
<tr>
<td>California Thrasher</td>
<td>Taxostoma redivivum</td>
</tr>
<tr>
<td>American Robin</td>
<td>+ Turdus migratorius</td>
</tr>
<tr>
<td>Varied Thrush (w)</td>
<td>Ixoreus naevius</td>
</tr>
<tr>
<td>Hermit Thrush (w)</td>
<td>Catharus guttata</td>
</tr>
<tr>
<td>Swainson's Thrush (s)</td>
<td>C. ustulatus</td>
</tr>
<tr>
<td>Western Bluebird</td>
<td>Sialia mexicana</td>
</tr>
<tr>
<td>Blue-gray Gnatcatcher (s)</td>
<td>Poliopitla caerulea</td>
</tr>
<tr>
<td>Ruby-crowned Kinglet (w)</td>
<td>Regulus calendula</td>
</tr>
<tr>
<td>Golden-crowned Kinglet (w)</td>
<td>R. saturap</td>
</tr>
<tr>
<td>American Pipit (w)</td>
<td>Anthus spinoletta</td>
</tr>
<tr>
<td>Cedar Waxwing (w)</td>
<td>Bombycilla cedrorum</td>
</tr>
<tr>
<td>Loggerhead Shrike</td>
<td>+ Lanius ludovicianus</td>
</tr>
<tr>
<td>European Starling</td>
<td>+ Sturnus vulgaris</td>
</tr>
<tr>
<td>Hutton's Vireo</td>
<td>Vireo huttoni</td>
</tr>
<tr>
<td>Solitary Vireo (s)</td>
<td>V. solitarius</td>
</tr>
<tr>
<td>Warbling Vireo (s)</td>
<td>V. gilvus</td>
</tr>
<tr>
<td>Orange-crowned Warbler</td>
<td>Vermivora celata</td>
</tr>
<tr>
<td>Yellow-rumped Warbler</td>
<td>Dendroica coronata</td>
</tr>
<tr>
<td>Yellow Warbler (s)</td>
<td>D. petechia</td>
</tr>
<tr>
<td>Townsend's Warbler (w)</td>
<td>D. townsendi</td>
</tr>
<tr>
<td>Hermit Warbler (s)</td>
<td>D. occidentalis</td>
</tr>
<tr>
<td>Salt Marsh Yellowthroat</td>
<td>Geothlypis trichas</td>
</tr>
<tr>
<td>Yellow-breasted Chat (s)</td>
<td>Icteria virens</td>
</tr>
<tr>
<td>Wilson's Warbler (s)</td>
<td>Wilsonia pusilla</td>
</tr>
<tr>
<td>Macgillivray's Warbler (s)</td>
<td>Oporornis tolmiei</td>
</tr>
<tr>
<td>Common Yellowthroat</td>
<td>Geothlypis trichas</td>
</tr>
<tr>
<td>Saltmarsh Yellowthroat</td>
<td>G. t. sinuosa</td>
</tr>
<tr>
<td>Yellow-breasted Chat (s)</td>
<td>Icteria virens</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Wilson's Warbler (s)</td>
<td>Wilsonia pusilla</td>
</tr>
<tr>
<td>House Sparrow</td>
<td>+ Passer Domesticus</td>
</tr>
<tr>
<td>Yellow-headed Blackbird (w)</td>
<td>= Xanthocephalus xanthocephalus</td>
</tr>
<tr>
<td>Red-winged Blackbird</td>
<td>+ Agelaius phoeniceus</td>
</tr>
<tr>
<td>Tricolored Blackbird</td>
<td>= A. tricolor</td>
</tr>
<tr>
<td>Brewer's Blackbird</td>
<td>+ Euphagus cyanocephalus</td>
</tr>
<tr>
<td>Brown-headed Cowbird</td>
<td>+ Molothrus ater</td>
</tr>
<tr>
<td>Northern Oriole (s)</td>
<td>= Icterus galbula</td>
</tr>
<tr>
<td>Hooded Oriole (s)</td>
<td>= I. cucullatus</td>
</tr>
<tr>
<td>Western Meadowlark</td>
<td>+ Sturnella neglecta</td>
</tr>
<tr>
<td>Western Tanager (s)</td>
<td>= Piranga iudoviciana</td>
</tr>
<tr>
<td>Black-headed Grosbeak (s)</td>
<td>= Pheucticus melanocephalus</td>
</tr>
<tr>
<td>Lazuli Bunting (s)</td>
<td>= Passerina amoena</td>
</tr>
<tr>
<td>Evening Grosbeak (w)</td>
<td>= Coccothraustes vespertinus</td>
</tr>
<tr>
<td>Purple Finch</td>
<td>= Carpodacus purpureus</td>
</tr>
<tr>
<td>House Finch</td>
<td>+ C. mexicanus</td>
</tr>
<tr>
<td>Pine Siskin</td>
<td>= Spinus pinus</td>
</tr>
<tr>
<td>American Goldfinch</td>
<td>= S. tristis</td>
</tr>
<tr>
<td>Lesser Goldfinch</td>
<td>+ S. psaltria</td>
</tr>
<tr>
<td>Rufous-sided Towhee</td>
<td>= Pipilo erythrophthalmus</td>
</tr>
<tr>
<td>California Towhee</td>
<td>= P. fuscus</td>
</tr>
<tr>
<td>Savannah Sparrow</td>
<td>= Passerculus sandwichensis</td>
</tr>
<tr>
<td>Vesper Sparrow</td>
<td>= Poecetes ramineus</td>
</tr>
<tr>
<td>Lark Sparrow</td>
<td>= Chondestes garrmacus</td>
</tr>
<tr>
<td>Rufous-crowned Sparrow</td>
<td>= Aimophila ruficeps</td>
</tr>
<tr>
<td>Grasshopper Sparrow (s)</td>
<td>= Armnodramus savannarum</td>
</tr>
<tr>
<td>Sage Sparrow</td>
<td>= Amphispiza belli</td>
</tr>
<tr>
<td>Dark-eyed Junco</td>
<td>= Junco hyemalis</td>
</tr>
<tr>
<td>Chipping Sparrow (s)</td>
<td>= Spizella passerina</td>
</tr>
<tr>
<td>White-crowned Sparrow (w)</td>
<td>+ Zonotrichia leucophrys</td>
</tr>
<tr>
<td>Golden-crowned Sparrow (w)</td>
<td>+ Z. atricapilla</td>
</tr>
<tr>
<td>Fox Sparrow (w)</td>
<td>= Passerella iliaca</td>
</tr>
<tr>
<td>Lincoln's Sparrow (w)</td>
<td>= Melospiza lincolnii</td>
</tr>
<tr>
<td>Song Sparrow</td>
<td>+ M. melanella</td>
</tr>
</tbody>
</table>

TOTAL 54

All listed plant species recorded during field surveys May 4-6, 1993, or reliably reported (*). Wildlife species observed during field surveys May 10-14, and June 7, 1993 (+) or reliably reported. See also Southwest Santa Rosa Master Environmental Assessment, LSA, April, 1991; Appendix D; Breeding Birds in the Study Area, and Appendix E, The Birds of Broadmoor Acres and Vicinity.

(w) = Winter range only
(s) = Summer range only
Sources:

Guggolz, Betty L. Undated. Plants That are Rare, Rare and Endangered, or Limited in Distribution (and map). Prepared for the City of Santa Rosa.


APPENDIX F

REGIONAL WATER QUALITY CONTROL BOARD LETTER, JULY 6, 1993, SANTA ROSA AIR CENTER
July 6, 1993

Woodrow C. Ersted
Santa Rosa Associates II
c/o Industrial Realty Co. of California
620 Airport Drive, Suite 6
San Carlos, CA 94070

Dear Mr. Ersted:

Subject: Santa Rosa Air Center, 3842 Finley Avenue, Santa Rosa, California, Case No. ITS0022

I have received your letter of May 28, 1993, concerning the Santa Rosa Air Center located at 3842 Finley Avenue in Santa Rosa. The following letter will address your request for deferring further work on your property until the Army Corps of Engineers completes characterization work on the Santa Rosa Naval Auxiliary Air Station.

As you are aware, Regional Board staff was present during the removal of the two 10,000 gallon underground storage tanks used by the Santa Rosa Air Center on March 11, 1992. The inspection report completed by our staff at the time of the inspection indicated the presence of separate phase (free) product on the surface of the groundwater in the excavation along with a heavy odor of gasoline. On July 29, 1992, we subsequently approved a workplan for the excavation of contaminated soils and the installation of monitoring wells in the area of the removed underground storage tanks. In April, September and October of 1992, soil excavation activities occurred in conjunction with the former tanks. However, the monitoring wells approved in the July 29, 1992 letter have not been installed.

Your letter requesting deferment of further work appears to be based on the finding of petroleum products other than gasoline at the outer excavation boundary. You attribute these findings to the former defense site, and requested deferment until the Army Corps of Engineers completes its work at the site. While the Regional Board staff may agree that the source of the other petroleum products could be from other discharges unassociated with the former underground tanks, a release has been reported for your fuel tanks. Accordingly, you are responsible for addressing the contamination originating from your tanks.

Applicable provisions of state laws and regulations govern the investigation and cleanup of discharges from your underground tank system. All work relating to these discharges will need to be in conformance with Article 11 of Chapter 16, Division 3, Title 23 of the California Code of Regulations. This Article deals with corrective action from fuel releases, and I have enclosed a copy for your information and use. Please refer to Section 2724 of Article 11 where the four conditions that require a soil and water investigation are listed. If any one of the listed conditions exists at a facility, a soil and water investigation is necessary.
The former underground storage tanks used at the Santa Rosa Air Center facility meet three of the four conditions requiring an investigation. The soil and groundwater investigation needs to include the area of the release, and all surrounding areas where contaminants may have migrated. The previously submitted workplan should be implemented, or a new plan should be prepared and submitted for our review.

A summary of the project from Edd Clark & Associates, Inc. was submitted with your letter. The summary indicates that a complete report describing all work performed at the Santa Rosa Air Center would be submitted following completion of all field activities. The probable date for submittal of the report is not provided, nor is a schedule for the field activities. The summary also refers to sample analyses results that have yet to be submitted to the Regional Board. You will need to submit a progress report identifying all field activities yet to be completed and the time schedule for their completion, including the report submittal date.

In summary, a soil and water investigation needs to be performed at your facility for the unauthorized release of aviation gas from the former underground tanks. Accordingly, pursuant to Section 13267 of the California Water Code, please submit by July 15, 1993, the progress report describing future field activities, a time schedule for the completion of field activities and the date for submittal of the final report to this agency. Please contact me if you have any questions.

Sincerely,

Kasey Ashley
Engineering Geologist

KA:lmf/kasrair4

Enclosure

cc: Jeff Lewin, Sonoma County Public Health Department
    Edd Clark & Associates, Incorporated, P.O. Box 3136, Rohnert Park, CA 94928
    Brenda Pederson, Army Corps of Engineers, 1325 J Street, Sacramento, CA 95814-2922
APPENDIX G
AIR QUALITY BACKGROUND INFORMATION
APPENDIX G
AIR QUALITY BACKGROUND INFORMATION

ADDITIONAL REGULATORY BACKGROUND

Bay Area Air Quality Management District

The 1979 Bay Area Air Quality Plan (AQP) projected attainment of federal ozone and CO standards by 1985. The 1979 AQP was revised in 1982 to comply with a Clean Air Act option for an extension to a 1987 attainment target. Among the control measures contained in the 1982 AQP was the motor vehicle inspection and maintenance (I&M) program. The 1982 AQP projected attainment of national ambient air quality standards for CO and ozone by 1987.

The Clean Air Plan (CAP) was prepared as a requirement under the CCAA. The 1991 CAP incorporates many of the control measures previously established in the 1979 and 1982 AQPs, removing exemptions contained in some measures, improving some measures and adding new control measures. The BAAQMD is responsible for all plan elements and control measures dealing with non-vehicular air pollution sources.

California

The State Bureau of Air Sanitation first identified air pollution levels that could endanger public health in 1955. Emissions from cars and trucks were recognized as the major source of smog-forming air pollutants. To combat this pollution, the State formed the Motor Vehicle Pollution Control Board (MVPCB) in 1959. The adoption of the Mulford-Carrell Act (SB490) in 1967 merged the MVPCB and the Bureau of Air Sanitation to create the Air Resources Board (ARB). In 1988, the California Clean Air Act (CCAA), Assembly Bill 2595 (Sher) was passed, identifying air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The goal of the CCAA is to attain the State ambient air quality standards by the "earliest practicable date." The State standards
shown in Table 3.2.4-1 were established in order to protect sensitive people from adverse health effects as indicated in Table G-1.

Federal
The federal government entered the field of air pollution control in 1955 with the Air Pollution Control Research and Technical Assistance Act, providing no regulatory authority. This was followed in 1963 by legislation that granted federal regulatory authority to hold abatement conferences to exert pressure on polluters in specific areas of the nation. In 1967 the first Air Quality Act was passed. The implementation of the 1967 Air Quality Act did not result in substantial improvement in the nation’s air quality.

The 1977 Clean Air Act Amendments (passed after many states failed to meet the five-year deadline for achieving the federal standards) required that each state identify areas within its borders that did not meet federal primary standards (i.e., non-attainment areas) and devise a State Implementation Plan (SIP), subject to EPA approval, that would guarantee attainment no later than the end of 1987. The Clean Air Act Amendments did not specify what course of action would be undertaken by the EPA if states failed to meet the 1987 attainment deadline. After the year 1987, many states, including California, were required to implement EPA interim policies. The passage of the amended federal Clean Air Act in November 1990 will once again provide guidelines to be followed by states to meet National Ambient Air Quality Standards.

AIR QUALITY MONITORING DATA
A four-year summary of the data collected at the Fifth Street station in Santa Rosa, is shown in Table G-2. This station is the closest air quality monitoring station to all projects in the Southeast Area Plan. The data in Table G-2 reveals no violations of the ozone, CO, and nitrogen dioxide standards.

CARBON MONOXIDE CALINE4 MODELING METHODOLOGY
The CO modelling was completed for three alternative scenarios. These scenarios are the existing Year 1993 scenario, the Year 2010 Plus Project Without Farmers Lane Extension scenario, and the Year 2010 Plus Project With Farmers Lane Extension scenario.
### TABLE G-1

**HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS**

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Adverse Affects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>Eye irritation. Respiratory function impairment.</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Risk of acute and chronic respiratory illness.</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory illness.</td>
</tr>
<tr>
<td>Total Suspended Particulate</td>
<td>Increased risk of chronic respiratory illness with long exposure. Altered lung function in children. With SO₂ may produce acute illness.</td>
</tr>
<tr>
<td>PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>Particulate matter 10 microns or less in size (PM&lt;sub&gt;10&lt;/sub&gt;) which may be inhaled and possibly lodge in and/or irritate the lungs.</td>
</tr>
<tr>
<td>Sulfates</td>
<td>Decreased lung function. Aggravation of asthmatic symptoms, cardiopulmonary disease.</td>
</tr>
<tr>
<td>Hydrogen Sulfide&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Impairment of the body to utilize oxygen. Chronic exposure to low concentrations may result in conjunctivitis (red eye) or pulmonary edema.</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>Angiosarcoma of the liver. Possibly other cancers. Possible effects on human reproduction.</td>
</tr>
</tbody>
</table>

---

<sup>1</sup> Curtis D. Dlaassen, Ph.D., Mary O. Amdur, Ph.D., John Doull, M.D., Ph.D., *Casarett and Doull's Toxicology*, 1986.

Source: California Air Resources Board.
### TABLE G-2

**SANTA ROSA AIR POLLUTANT DATA SUMMARY 1988-1991**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OZONE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest 1-hour (ppm)</td>
<td>0.09</td>
<td>0.09*</td>
<td>0.07</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Days &gt; 0.09 ppm</td>
<td>State</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Days &gt; 0.12 ppm</td>
<td>Federal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>CARBON MONOXIDE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest 1-hour (ppm)</td>
<td>9.0</td>
<td>9.0*</td>
<td>7.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>2nd Highest 1-hour (ppm)</td>
<td>8.0</td>
<td>8.0*</td>
<td>7.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Days &gt; 20.0 ppm</td>
<td>State</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Days &gt; 35.0 ppm</td>
<td>Federal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Highest 8-hour</td>
<td>5.1</td>
<td>6.1*</td>
<td>5.1</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>2nd Highest 8-hour</td>
<td>4.9</td>
<td>5.0*</td>
<td>4.3</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Days &gt; 9.1 ppm</td>
<td>State</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Days &gt; 9.5 ppm</td>
<td>Federal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>NITROGEN DIOXIDE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest 1-hour (ppm)</td>
<td>0.12</td>
<td>0.09*</td>
<td>0.09</td>
<td>0.09*</td>
<td></td>
</tr>
<tr>
<td>Days &gt; 0.25 ppm</td>
<td>State</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Annual Mean</td>
<td>0.016</td>
<td>0.015*</td>
<td>0.014</td>
<td>0.015*</td>
<td></td>
</tr>
<tr>
<td>Year &gt; 0.05 ppm</td>
<td>Federal</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>SULFUR DIOXIDE</strong></td>
<td>(Not measured at this station)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PARTICULATES (PM_{10})</strong></td>
<td>(Not measured at this station)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Units: ppm = parts per million; ug/m^3 = micrograms per cubic meter;
- Data presented are valid, but incomplete in that insufficient number of valid data points were collected to meet EPA and/or CARB criteria for statistical significance.

Carbon monoxide concentrations were predicted at 13 intersections for the existing scenario and 14 intersections for the Year 2010 scenarios using CALINE4, the fourth generation California Line Source Dispersion Model, developed by Caltrans. The calculated CO concentrations are a combination of two sources. The first is the intersection analysis for the intersections. The second is the background concentration. The model will be run in the intersection and roadway worst-case angle search mode for the calculation of the first source. The 1-hour and 8-hour background concentration is calculated by multiplying the 1988 background level for Santa Rosa by the associated rollback factor for the modeled year.

Some of the assumptions are as follows: Emission generation data is obtained from California Air Resources Board (CARB) E7EPSCF2 emission factors and temperature correction factors. The idle emission factor is taken from the 5 mph emission factor. Emission data will take into account the following data. Vehicle mix comes from the CARB BURDEN7C model runs which predicted vehicle miles traveled for Bay Area Air Basin portion of Sonoma County by vehicle class. Hot Starts will be 10% and Cold Starts will be 50%. Table G-3 presents the assumptions for inputs into the CALINE4 model used in this EIR.

Output from the model includes 1-hour carbon monoxide concentrations in parts per million (ppm) at selected receptor location(s). The predicted CALINE4 concentration is calculated for the 1-hour averaging time. To reflect 8-hour CO concentrations the 1-hour CALINE4 concentration must be multiplied by 0.633 to convert to the predicted 8-hour CO concentrations.

CONSTRUCTION EQUIPMENT EMISSION FACTORS
To obtain estimates of daily ROC and NOx emissions, the type, scheduling, and number of construction equipment is needed. Multiply the number of hours of operation for each piece of equipment by the emission factor in Table G-4. The emissions are presented in pounds per hour. To estimate annual emissions multiply by the number of days of construction.
### TABLE G-3

**ASSUMPTIONS FOR INPUTS INTO CALINE4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Assumption (Source)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerodynamic Roughness Coef.</td>
<td>100 cm = Single Family Residential (Benson)</td>
</tr>
<tr>
<td>Settling &amp; Deposition Velocity</td>
<td>0 cm/s (Randall and Ng 1987) for CO</td>
</tr>
<tr>
<td>Altitude Above Sea Level</td>
<td>0 feet</td>
</tr>
<tr>
<td>Roadway Height</td>
<td>0 ft (Assuming at grade)</td>
</tr>
<tr>
<td>Z Receptor Coordinate</td>
<td>1.5 m (Caltrans 1988)</td>
</tr>
<tr>
<td>X &amp; Y Receptor Coordinates</td>
<td>4 ea. 1-hr at curb (±[(4m<em>N-S Lanes) + 4m], ±[(4m</em>E-W Lanes) + 4m])</td>
</tr>
<tr>
<td></td>
<td>4 ea. 8-hr back 10m (±[(4m<em>N-S Lanes)+14m], ±[(4m</em>E-W Lanes)+14m])</td>
</tr>
<tr>
<td>(Wood 1991)</td>
<td></td>
</tr>
<tr>
<td>Link Endpoints</td>
<td>500 m from the intersection (Benson 1984)</td>
</tr>
<tr>
<td>Stopline Distance</td>
<td>500 m - [(Cross-street Lanes + 1) * 4 m] (Caltrans 1988)</td>
</tr>
<tr>
<td>Mixing Zone Width</td>
<td>[12 ft * (Number of Lanes)] + 6 m (Caltrans 1988)</td>
</tr>
<tr>
<td>Deceleration Time to 0 mph</td>
<td>20 mph = 5.1 s 25 mph = 6.5 s 30 mph = 7.3 s 35 mph = 8.2 s 40 mph = 8.9 s 45 mph = 9.1 s 50 mph = 9.8 s 55 mph = 10.2 s</td>
</tr>
<tr>
<td>(Association of American Street and Highway Officials)</td>
<td></td>
</tr>
<tr>
<td>Acceleration Time from 0 mph</td>
<td>15 mph = 6 s 20 mph = 10 s 25 mph = 13 s 30 mph = 17 s 35 mph = 21 s 40 mph = 26 s 45 mph = 32 s 50 mph = 37 s</td>
</tr>
<tr>
<td>(Wood 1991)</td>
<td>55 mph = 42 s (interpolation)</td>
</tr>
<tr>
<td>Speed</td>
<td>Speed limits</td>
</tr>
<tr>
<td>Emission Factor</td>
<td>E7EPSCF2 for Bay Area Air Basin-Sonoma County (CARB 1992)</td>
</tr>
<tr>
<td>Idle Emission Factor</td>
<td>E7EPSCF2 for Bay Area Air Basin-Sonoma County at 5 mph (ibid)</td>
</tr>
<tr>
<td>Mixing Width Right &amp; Left</td>
<td>0 ft (If no canyon or bluff)</td>
</tr>
<tr>
<td>Cycle Length</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Vehicle Idle time at Stopline</td>
<td>1/Ratio of the traffic volume (Wood 1991)</td>
</tr>
<tr>
<td>Vehicle Idle time at End</td>
<td>0 s (Wood 1991)</td>
</tr>
<tr>
<td>Wind Direction</td>
<td>All [Worst-case angle search] (Benson 1984)</td>
</tr>
<tr>
<td>Wind Speed</td>
<td>1 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Atmospheric Stability</td>
<td>F = 6 (ibid)</td>
</tr>
<tr>
<td>Mixing Height</td>
<td>1000 m (Caltrans 1988)</td>
</tr>
<tr>
<td>Sigma Theta</td>
<td>10' (ibid)</td>
</tr>
<tr>
<td>Ambient Concentration</td>
<td>CO 1-hr = 6 ppm &amp; 8-hour = 3 ppm (BAAQMD 1991)</td>
</tr>
<tr>
<td>Rollback Factors</td>
<td>1993 = 0.86, and 2010 = 0.63 (ibid)</td>
</tr>
<tr>
<td>January Morning Temperature</td>
<td>Screen Temp +5°F = 40°F (Caltrans 1993)</td>
</tr>
<tr>
<td>Link Type</td>
<td>Intersection = 6 (Benson 1984)</td>
</tr>
<tr>
<td>Percent Hot Starts</td>
<td>10% (Caltrans 1993)</td>
</tr>
<tr>
<td>Percent Cold Starts</td>
<td>50% (ibid)</td>
</tr>
<tr>
<td>Vehicle Mix</td>
<td>BURDEN7C Vehicle Mix for Bay Area Air Basin-Sonoma County (CARB 1990)</td>
</tr>
</tbody>
</table>

**SOURCE:** Various sources see reference.
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Reactive Organic Compounds (ROC)</th>
<th>Nitrogen Oxides (NO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIESEL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracked Tractor</td>
<td>0.12</td>
<td>1.26</td>
</tr>
<tr>
<td>Wheeled Tractor</td>
<td>0.19</td>
<td>1.27</td>
</tr>
<tr>
<td>Wheeled Dozer</td>
<td>0.19</td>
<td>4.17</td>
</tr>
<tr>
<td>Scraper</td>
<td>0.28</td>
<td>3.84</td>
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<tr>
<td>Motor Grader</td>
<td>0.04</td>
<td>0.71</td>
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<tr>
<td>Wheeled Loader</td>
<td>0.25</td>
<td>1.89</td>
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<tr>
<td>Tracked Loader</td>
<td>0.10</td>
<td>0.83</td>
</tr>
<tr>
<td>Off-Highway Truck</td>
<td>0.19</td>
<td>4.17</td>
</tr>
<tr>
<td>Roller</td>
<td>0.07</td>
<td>0.86</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.15</td>
<td>1.69</td>
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<tr>
<td><strong>GASOLINE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheeled Tractor</td>
<td>0.50</td>
<td>0.43</td>
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<tr>
<td>Motor Grader</td>
<td>0.56</td>
<td>0.32</td>
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<tr>
<td>Wheeled Loader</td>
<td>0.70</td>
<td>0.52</td>
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<tr>
<td>Roller</td>
<td>0.79</td>
<td>0.36</td>
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<tr>
<td>Miscellaneous</td>
<td>0.73</td>
<td>0.41</td>
</tr>
</tbody>
</table>

REFERENCES


Benson, Paul. *CALINE 3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets*. Office of Transportation Laboratory, Sacramento, CA.


APPENDIX H
ENVIRONMENTAL CONDITIONS MATRIX:
SOILS, GEOLOGY AND SEISMICITY
# SOUTHWEST SANTA ROSA AREA PLAN ENVIRONMENTAL IMPACT REPORT

## Environmental Conditions Matrix: Soils, Geology & Seismicity

<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Geologic Substrate</td>
</tr>
<tr>
<td>Preferred Sketch Plan</td>
<td>of M VL</td>
</tr>
<tr>
<td>Project #1: Dutton Place</td>
<td>of M VL L</td>
</tr>
<tr>
<td>Project #2: Westmeadow Park</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #3: Western Gardens</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #4: Foulk Village</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #5: South Creek Village</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #6: Baker Subdivision</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #7: Burbank Ave. Condo.</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #8: Ash Drive</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #9: Courtside Village</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #10: Martin Homeless Housing</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #11: Northpoint Village</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #12: Solarium 2010</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #13: Mountain View Homes</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #14: Lands of Kirsch</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #15: Griffin Estates</td>
<td>of H L-M</td>
</tr>
<tr>
<td>Project #16: Lands of Wiemer</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #17: Pero Apartments</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #18: Burbank Housing</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #19: Skidmore Acres</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #20: South Dutton</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #21: Orchard Park</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #22: Springfield</td>
<td>of M VL L-M</td>
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<tr>
<td>Project #23: Young's Dutton Place</td>
<td>of M VL L-M</td>
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<tr>
<td>Project #24: Lara Subdivision</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #25: Patrick Brennan Acres</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #26: Cali. Stony Point</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #32: Cali. Stony Point</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #27: Lands of Pierre</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #28: Village Station</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #29A: Bellevue Ranch</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #29B: Bellevue Ranch</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #29C: Bellevue Ranch</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #30: Air Center</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #31: Ken Martin Property</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #34: Southwest Fire Station</td>
<td>of M VL L-M</td>
</tr>
<tr>
<td>Project #35: Bellevue Elem. School</td>
<td>of M VL L-M</td>
</tr>
</tbody>
</table>

## Infrastructure

| Project #33: Bellevue Interchange | of M VL L-M | of H L | of Z M-H | | of W L-H | | of W VL | | of L-I | | of I D | |

### Notes

1. See Geologic Map (Figure 3.2.1-4) for name and description of units.

2. VL = Very Low, L = Low, M = Moderate, H = High, U = Unknown because of variable soil textures

3. Ø = No known fault trace, P = Possible fault trace.

4. See soil table (Table 3.2.1-2) for name and other characteristics of soils.

5. Number of Acres of Locally Important Farmland on Site, D = Developed land mapped on all of site, X = Other land mapped on all of site.