Final Environmental Impact Report
(Revised Draft EIR)
Southeast Santa Rosa Area Plan

City of Santa Rosa
Department of Community Development
RESOLUTION NO. 21807

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA ROSA CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT PREPARED FOR THE SOUTHEAST SANTA ROSA AREA PLAN.

WHEREAS, pursuant to the requirements of the California Environmental Quality Act ("CEQA"), the State CEQA Guidelines, and the Santa Rosa City Code, a Draft Environmental Impact Report ("DEIR") was prepared by a City retained consultant on the Draft Southeast Area Plan; and

WHEREAS, the Santa Rosa Planning Commission held a duly noticed public hearing on the DEIR at which all interested persons were invited to speak and to present written comments; and

WHEREAS, written responses were prepared for all comments received at the public hearing and during the public review period on the DEIR and presented to the Planning Commission in a volume entitled "Final Environmental Impact Report (Comments and Responses), Southeast Santa Rosa Area Plan"; and

WHEREAS, the Planning Commission considered the DEIR, the comments received on the DEIR, and the written responses to such comments and the Planning Commission recommended to the City Council that Mitigation Measure 3.1.7-3 regarding the impact of development within the boundaries of the Area Plan on elementary, junior high and high school facilities be amended through the adoption of an addendum to the DEIR, as set forth in Planning Commission Resolution No. 8441, and as so revised, recommended that the City Council certify the FEIR; and

WHEREAS, the City Council has reviewed and considered the revised DEIR, dated October 1993, the Final Environmental Impact Report (Comments and Responses), dated October 1993, the results of the November 1993 general election, specifically the defeat of Proposition 170, which had the effect of repealing certain legislation affecting school facility financing which legislation had become effective on January 1, 1993, the recommendations of the Planning Commission made prior to the November 1993 election, although formally adopted after the election, the staff reports, oral and written, and the testimony and other materials presented by interested persons and agencies.

NOW, THEREFORE, BE IT RESOLVED, that the Council of the City of Santa Rosa, based on the materials, reports and testimony presented, reviewed, and considered, finds that the Final Environmental Impact Report for the proposed Southeast Santa Rosa Area Plan, consisting of two volumes entitled "Final Environmental Impact Report (Revised Draft EIR)" and "Final Environmental Impact Report (Comments and Responses), both dated October 1993, which it has independently reviewed, is adequate, except for the following: (a) Mitigation Measure 3.1.7-3 (Schools) contained in the Revised Draft EIR, which does not reflect the current state of the law as changed by the results of the November
1993 election; (b) the Revised Draft EIR’s discussion of Air Quality Impacts 3.2.4-1 and 3.2.4-3, which, based upon recent clarification by the EIR Consultant, incorrectly concludes that these impacts would be significant and unavoidable; (c) Mitigation Measure 3.1.7-1 (Police), which is too specific; (d) 3.1.8-2 (Hazardous Materials) which needs to be amended to take into account the potential for other hazardous materials, such as lead paint and polychlorinated biphenyls; (e) Mitigation Measure 3.2.5-2 (Noise) which should more closely reflect City policies for noise mitigation; and (f) Mitigation Measure 3.2.1-5 (Geology), which unnecessarily requires review of building plans in non-fault zone areas by a Geotechnical or Structural Engineer.

BE IT FURTHER RESOLVED that the City Council hereby amends the Revised Draft EIR to insert certain additional text and revised mitigation measures as set forth in Exhibit A, attached hereto and made a part hereof, in place of the specified discussion and mitigation measures being the same number, as set forth in the Draft EIR. These amendments shall be deemed the adoption of an addendum to the subject EIR if such characterization is required under CEQA and the State CEQA Guidelines.

BE IT FURTHER RESOLVED that as so amended, the Council of the City of Santa Rosa certifies that the Final Environmental Impact Report was completed in compliance with the requirements of CEQA, and finds that the FEIR reflects the independent judgment of the City Council.

IN COUNCIL DULY PASSED this 21st day of June, 1994.

AYES: (4) Mayor Knight; Councilmembers Pedgrift, Berto, Wright

NOES: (0)

ABSENT: (1) Councilmember Casey

ABSTAIN: (0)

APPROVED: [Signature]

ATTTEST: [Signature]

APPROVED AS TO FORM

[Signature]

City Attorney
EXHIBIT A

AMENDMENTS RELATING TO SCHOOL IMPACTS

Insert in Revised DEIR under Schools, page 3.1.7-8, as two new paragraphs (below the existing paragraph and before "Mitigation Measure"): '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 will be inadequate to mitigate the impacts of development under the Southeast Area Plan on the facilities of 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 school facilities has been mitigated." 

Mitigation Measure 3.1.7-3

Insert the following to replace measure 3.1.7-3 of the Revised Draft EIR: 

"The City Council shall not adopt a legislative act which allows residential development within the boundaries of the Southeast Area Plan unless the Council first finds (1) that the impact of the development on elementary, junior high (middle school) and high 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." 

AMENDMENTS RELATING TO AIR QUALITY IMPACTS

Delete from the Revised Draft EIR Impact 3.2.4-1, and insert in its place: 

Impact 3.2.4-1: The Southeast Area Plan and Farmers Lane Extension/infrastructure would result in construction related emissions. (I) Delete from the Revised Draft EIR the paragraph which follows Mitigation Measure 3.2.4-1.
Delete from the Revised Draft EIR Impact 3.2.4-3, and insert in its place:

**Impact 3.2.4-3**: Southeast Area Plan development would result in vehicular, home heating, home cooling, and wood burning emissions. (I)

Delete the last sentence from the paragraph preceding Mitigation Measure 3.2.4-3, and insert in its place: "The following mitigation measure is suggested, but not necessary, to reduce operational emissions."

**AMENDMENT RELATING TO PUBLIC SERVICES**

**Mitigation Measure 3.1.7-1**:

Insert the following to replace measure 3.1.7-1 of the Revised Draft EIR:

"The City should agree to fund additional resources for Police Services so as to provide adequate levels of service. Funding of additional resources will be determined by the City Council during the annual budget process, over the buildout of the plan."

**AMENDMENT RELATING TO HAZARDOUS MATERIALS**

**Mitigation Measure 3.1.8-5**:

Insert the following to replace measure 3.1.8-5 of the Revised Draft EIR:

"A Hazardous Waste Manifest which details the hauling of the material from the site to its disposal site 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.

A site investigation, prior to the start of work would need to be conducted for lead paint and polychlorinated biphenyls. If found, a Site Safety Plan should be developed in accordance with OSHA regulations, outlining procedures for worker safety, personnel protective equipment, and handling of materials. Implementation of these procedures would result in an insignificant public health impact."

**AMENDMENT RELATING TO NOISE**

**Mitigation Measures 3.2.5-2**:

Insert the following to replace measure 3.2.5-2 of the Revised Draft EIR:
"Project developers should propose noise mitigation consistent with General Plan Noise and Area Plan Community Design policies to reduce 2010 exterior noise levels on proposed residential and school land uses to 60 Ldn or below, on proposed playgrounds and neighborhood park land uses to 70 Ldn or below, and on proposed office buildings and commercial areas to 65 Ldn or below."

AMENDMENT RELATING TO SOILS, GEOLOGY, SEISMICITY

Mitigation Measure 3.2.1-5 (First Paragraph Only)

Insert the following to replace a portion of measure 3.2.1-5 of the Revised Draft EIR:

"Require site-specific seismic-restraint criteria to be incorporated in the design of slopes, foundations, and structures for projects within the Plan Area. Implementation of this measure, as outlined below, would reduce this impact to an insignificant level. (I)."
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PURPOSE OF EIR

This Master Environmental Impact Report (EIR) for the Southeast 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 the Draft Southeast Santa Rosa Area Plan and related projects and infrastructure, 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. The law itself (CEQA) provides that public agencies should not approve projects as proposed (in this case the Draft Southeast Area Plan, related projects and infrastructure), 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 Southeast Santa Rosa Draft 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 projects and infrastructure. The merits of the Draft Area Plan, related projects and infrastructure will be considered separately by the Planning Commission and City Council after certification of the EIR.

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 & Responses). The
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 Southeast 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 I, 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:

State Agencies
California Environmental Protection Agency
California Department of Food and Agriculture
California Department of Conservation
California Department of Transportation

Regional
Regional Water Quality Control Board

County of Sonoma
Sonoma County Water Agency
Sonoma County Public Health Department
Sonoma County Department of Planning
Sonoma County Department of Public Works
Introduction

In addition, a public scoping meeting was held at the Personnel Training Center, Santa Rosa City Hall, on the evening of March 3, 1993. The meeting was noticed by the City of Santa Rosa in advance of the scoping session. 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 3 scoping meeting, all correspondence was passed on to the EIR preparers for their consideration in preparing the Draft EIR for the Southeast 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 and Policies;
- 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 Southeast Santa Rosa Area Plan, together with proposed individual projects and infrastructure 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 Southeast 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 SOUTHEAST AREA PLAN

The Plan itself is treated as the "project". The 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.

In addition, the EIR analysis of the Area Plan addresses cumulative development. This means that buildout of the Southeast Area is addressed in the assessment of environmental impacts, rather than addressing only a portion of the Area Plan. This portion of the EIR 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 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...
The EIR also addresses construction of the Farmers Lane Extension project and the installation of new utilities (water, sewer, storm drainage), which would be required for buildout of the Area Plan and construction of the eleven individual project proposals (described below). Thus, the Farmers Lane Extension project and infrastructure improvements are considered as part of the Draft Area Plan.

PROPOSED PROJECTS

Eleven 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, site-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 detail provided in each application.

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:

- Southeast 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 would 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 unavoidable environmental risks in determining whether to approve a project. The Statement is preserved in the record of project approval (if a project is approved), and is prepared after the Final EIR has been completed.

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

(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 to be used with the Final EIR has also been prepared as a separate volume. The mitigation monitoring and reporting program is intended to accomplish the following:

- 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.
Introduction

- 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 Southeast Area Plan. In addition, this EIR addresses a series of projects proposed for development within the Southeast Area Plan. Subsequent project-specific environmental review for parcels within the Southeast Area Plan for which there is no current proposal would focus on ensuring that a project is consistent with this Master EIR.

It should also be noted that concurrent with preparation of the Southeast Area Plan EIR, an EIR is being prepared for the Southwest Santa Rosa Area Plan. The incremental environmental effects of the Southwest Area Plan, in addition to cumulative development impacts, will be examined in the 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

SOUTHEAST AREA PLAN

The preparation of a detailed plan for Southeast 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 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 ......."

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 March 1992, Phase I activities included reviewing existing data for the Southeast Area, including current General Plan policies for the area and a Draft Environmental Impact Report for the Farmers Lane Extension project.

Next, draft policies and neighborhood concepts for the Southeast 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 Southeast Area. The alternative sketch plans were then reviewed by a Citizens Committee, City Planning Commission and City Council and a Preferred 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 eleven specific project proposals to be included within the Southeast Area Plan study area EIR.

It should also be noted that over the past twenty years, both the City of Santa Rosa and Sonoma County have discussed extending the existing Farmers Lane arterial from State Highway 12 south through the southeast quadrant of Santa Rosa. Both the City and County have adopted General Plans which include the Farmers Lane Extension project.

PROPOSED PROJECTS
As noted above, eleven individual residential (some with commercial use) project proposals located within the Southeast Area Plan study area have been submitted to the City of Santa Rosa for review and approval.

1.2 SOUTHEAST AREA PLAN LOCATION, COMPONENTS AND SCHEDULING
LOCATION
The Southeast Area Plan encompasses 640 acres in the southeast portion of the City of Santa Rosa in Sonoma County generally defined by State Highway 12 on the north and U.S. Highway 101 on the west.

The Southeast Area plan is bounded by Bennett Valley Road to the northeast, and Petaluma Hill Road and Moraga Drive on the west. The east and south margins of the Area Plan do not follow existing roadways and are located in undeveloped areas.

COMPONENTS
Draft Southeast Area Plan
For the most part, as a long-range development program, the Southeast Area Plan reflects the Santa Rosa General Plan land use diagram and General Plan development policies relevant to the Southeast area. In preparing the Draft Southeast Area Plan, some of the basic concepts of the General Plan which were considered included the number of dwelling units projected for the
Southeast 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 hillsides, creeks and significant trees.

The policies of the Draft 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. To the extent the arrangement of land uses as shown on the Draft Area Plan map are different than the General Plan map, adoption of the Draft Area Plan by the City Council would require an amendment to the General Plan map.

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.

Farmers Lane Extension. This project, approximately two miles in length, would be constructed as an arterial roadway extending from Bennett Valley Road on the north, proceed south through the Southeast Area Plan, and then curve to the west linking up with Yolanda Avenue at Petaluma Hill Road.

As noted in the Santa Rosa General Plan: "Construction of Farmers Lane Extension between Bennett Valley Road and Highway 101 as an arterial, to allow traffic to bypass the already congested interchange between Highways 12 and 101 and to serve adjoining development."

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

Storm Sewers. Construction would require the installation of new County drainage facilities under Petaluma Hill Road. Additionally, drainage improvements to remove the capacity problems at the Moraga drain in the north portion of the Plan area would be undertaken. The Colgan Channel at Corby Avenue 0.2 miles west of Santa Rosa Avenue would need to be upgraded because the channel
has inadequate capacity for the 25-year design flow. Other, additional drainage facilities would be required for individual roads and parcels.

**Water Supply.** With respect to water supply, lower elevations within the Plan area in the vicinity of Petaluma Hill Road will be served by existing water mains. The remainder of the Plan area will require additional facilities for the provision of water service in the Plan area. A conceptual plan for a higher level water system with the provision of water tanks has been included in the Area Plan.

**SCHEDULING**

Development of the Southeast area will take place over a period of years. It is not clear how current economic conditions would determine a horizon year for 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 11 development projects proposed by individual project sponsors within the Southeast Area Plan boundary.

**PROJECT #1: 1815 MEDA AVENUE SITE**

**Location.** 7.41 acre site located at 1815 Meda Avenue, between Moraga Drive and Meda Avenue, south of Aston Avenue and east of Kawana School.

**Project Description.** The project proposal is to develop 92 multi-family housing units for low and moderate income families. The buildings would consist of 44 two-story townhouses and 48 connected flats held under the condominium form of ownership. The project would also include a 6,000 square foot community meeting and daycare facility with fenced play area.

**PROJECT #2: 2307 LINWOOD AVENUE SITE**

**Location.** 4.26 acre site located at 2307 Linwood Avenue, between Linwood and Eaton Avenues.

**Project Description.** The project would subdivide the site into 14 residential lots. Figure 2.2-10. The lots would range from 7,189 to 10,801 square feet in area.
PROJECT #3: 2555 LINWOOD AVENUE SITE
Location. 0.94 acre site located at 2555 Linwood Avenue, between Linwood and Eaton Avenues.

Project Description. The project would subdivide the property into five residential lots, ranging from 5,275 to 6,433 square feet in area.

PROJECT #4: 2549 LINWOOD AVENUE SITE
Location. 3.49 acre site located immediately west of Project 3 between Eaton Avenue and Linwood Avenue.

Project Description. The project would subdivide the site into 14 single family residential lots ranging from 5,024 to 15,257 square feet in area.

PROJECT #5: 2595 LINWOOD AVENUE SITE
Location. 5.0 acre site located at 2595 Linwood Avenue, between Linwood and Eaton Avenues.

Project Description. The project would subdivide the property into 28 single-family residential lots ranging from 3,586 to 9,100 square feet in area.

PROJECT #6: DAUENHAUER RANCH
Location. 95.93 acre site located east and north of Linwood Avenue.

Project Description. The project proposal is to annex 95.93 acres of land to the City of Santa Rosa, and construct the following:

90 5,000 square foot single-family lots
45 4,000 square foot single-family lots
34 3,200 square foot single-family lots
36 townhouses
21 custom single-family lots
Subdivision of the property would therefore be capable of accommodating 226 dwelling units. In addition, a 2.16 acre neighborhood park is proposed for the project. The proposed Farmers Lane Extension project would bisect the site. Access to the site would be via Linwood Avenue and Farmers Lane Extension.

PROJECT #7: 2375 LINWOOD AVENUE SITE

Location. 10.0 acre site located at 2375 Linwood Avenue, between Linwood and Eaton Avenues.

Project Description. The project would annex 10 acres of land into the City of Santa Rosa and subdivide the site into 53 single-family residential lots ranging in size from 4,135 to 9,545 square feet, with an average lot size of approximately 5,808 square feet.

PROJECT #8: WILLOW CREEK SITE

Location. 140 acre site bounded by Petaluma Hill Road on the west, the Santa Rosa Urban Boundary on the east, Kawana Springs Road on the south.

Project Description. The project includes a portion of the Farmers Lane Extension project which would bisect the eastern half of the site. The project is proposed to include 493 single-family detached homes and 198 multi-family units for a total of 691 residential units. There would also be 10,000 to 15,000 gross square feet of commercial space on a 9.1 acre "Town Center" site.

Open space would include about 4 acres along Colgan Creek, and an additional 12 acres of neighborhood and community park facilities for a total open space and park area of about 16 acres.

PROJECT #9: ELLSWORTH SITE

Location. 4-acre site located on the east side of Gordon Avenue at its existing southern terminus.

Project Description. The project includes subdividing a four acre site to allow the construction of 10 duplexes and 12 townhouses for a total of 32 units. The property is one of two parcels proposed for development within the Southeast Area Plan that is within the Santa Rosa City Limits and would not require annexation to the City.
PROJECT #10: KAWANA MEADOWS SUBDIVISION

Location. 48.6-acre site located on the east side of Petaluma Hill Road, roughly opposite the Yolanda Avenue/Petaluma Hill Road intersection, south of Kawana Springs Road.

Project Description. The project proposal is to subdivide the parcel in order to construct 81 single-family residential units and 41 multi-family units, for a total of 122 dwelling units. The project would also contain 110,000 gross square feet of commercial space and reserve a lot adjacent to Kawana Springs Road for a future fire station.

The Kawana Springs Subdivision is one of two parcels within the Southeast Area Plan that is within the Santa Rosa City Limits, and would not require annexation.

PROJECT #11: McINTOSH SUBDIVISION

Location. 14.8-acre site bounded on the west and south by Linwood Avenue. The site is located immediately south of the Dauenhauer Ranch site (Project #6).

Project Description. The project would subdivide the site into 68 residential lots as follows:

- 12 lots at 5,000 to 6,000 square feet
- 21 lots at 3,500 square feet ("quad lots")
- 21 lots at 4,480 square feet ("cottage lots")
- 4 cottage duplex lots
- 10 attached 3-plex and 4-plex lots

The project proposal includes the Farmers Lane Extension along the east portion of the site separating very low density residential development to the east from low density residential development to the west. The very low density lots would range from 13,300 square feet to 36,000 square feet with an average size of 21,100 square feet.
1.4 REQUIRED APPROVALS

SOUTHEAST AREA PLAN

 Approval and adoption of the Southeast 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.

The Farmers Lane Extension/infrastructure projects would need to comply with City plans and specifications for roadway/utility design. 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 Farmers Lane Extension/infrastructure projects.

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.

INDIVIDUAL PROJECTS UNDER THE AREA PLAN

Prior to construction of individual projects for which the City has received proposals, 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 Southeast Area Plan project as proposed. Controversial issues are known to the public through expressions of public opinion that are documented in the media.
Some of these issues are not CEQA issues because CEQA evaluations are limited to environmental considerations, but are listed below for informational purposes. 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) The desirability and benefits of constructing the Farmers Lane Extension project through southeast Santa Rosa. This subject is discussed in Section 6, Alternatives.

3) 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 designing 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 Circulation.

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

5) 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. Alternative Circulation Plans
3. Alternative Area Plans
4. Environmentally Superior Alternatives

Upon completion of the technical analysis of this EIR, other issues remain to be resolved prior to any 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 Southeast Santa Rosa Area Plan area.
- The timing of constructing the Farmers Lane Extension project, if the Farmers Lane Extension project is approved for construction.

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).

A summary matrix is also provided that compares the environmental impacts of the Area Plan project and proposed individual projects. Level of impact for each area of investigation without and with mitigation is indicated.
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 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 and/or proposed individual 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.
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**LEGEND**
- ● Significant Unavoidable Impact
- □ Significant Impact Mitigated to Level of Insignificance
- ○ No Identified Impact

1. Includes infrastructure of Farmer's Lane Extension, water, storm / sanitary sewers
2. Includes Cumulative Traffic
IMPACTS DETERMINED TO BE INSIGNIFICANT

EMPLOYMENT, HOUSING AND POPULATION

SOUTHEAST 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

SOUTHEAST AREA PLAN

- Increased demand for transit trips from the Southeast Area.
- Farmers Lane Extension would divert traffic away from local streets in the Area Plan to the Farmers Lane Extension (a proposed arterial street).

PROPOSED PROJECTS

- The traffic impacts from land use proposals #3, 4, 5, 7 and 9 are individually insignificant.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

- Appearance of infrastructure construction equipment and excavations during the period of construction.

PROPOSED PROJECTS

- Development of Project #9 (Ellsworth Site - beneficial impact).

UTILITIES

SOUTHEAST AREA PLAN AND PROPOSED PROJECTS

- Daily water requirements.
- Wastewater collection and treatment.
PUBLIC SERVICES

* SOUTHEAST AREA PLAN AND PROPOSED PROJECTS *
  - Increased solid waste stream to the Sonoma County Central Landfill.

SOILS, GEOLOGY AND SEISMICITY

* SOUTHEAST AREA PLAN *
  - Elimination of access to approximately 285 acres of Sonoma Volcanics of unknown mineral resource potential.

VEGETATION AND WILDLIFE

* SOUTHEAST AREA PLAN *
  - Loss of annual and perennial grassland.

* PROPOSED PROJECTS *
  - Construction on sites #1 through #5, #7, #9 and #11.

AIR QUALITY

* SOUTHEAST AREA PLAN *
  - Cumulative CO concentrations at intersections.

* PROPOSED PROJECTS *
  - Cumulative increases in CO concentrations at intersections.
SIGNIFICANT IMPACTS DETERMINED TO BE INSIGNIFICANT WITH MITIGATION IMPLEMENTED

TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

Impact
The project, along with cumulative traffic growth, would have a significant impact (below City standard) in the following areas:

Santa Rosa Avenue (both directions); Hearn Avenue to Todd Road (LOS "F")

Yolanda Avenue (westbound); Santa Rosa Avenue – Petaluma Hill Road (LOS "F")

Mitigation
Additional turning and/or through lanes would be required at these intersections outside of the Plan Area:

Santa Rosa Avenue/Hearn Avenue Overcrossing of US 101
Yolanda Avenue-Farmers Lane Extension/Petaluma Hill Road
Yolanda Avenue/Santa Rosa Avenue
Kawana Springs Road/Petaluma Hill Road
Bennett Valley Road/Farmers Lane Extension

Impact
The intersection of Aston-Allen Way Extension would exceed the traffic volume normally acceptable for a stop-sign controlled intersection.

Mitigation
Signalize intersection, and interconnect with intersection of Farmers Lane Extension/Bennett Valley Road.

PROPOSED PROJECTS

Impact
The impacts of land development Projects #1, #2, #6, #8, #10, and #11 would be individually insignificant if the proposed mitigation measures for these projects and surrounding streets are implemented.

Mitigation
See body of EIR for details of the proposed street systems and individual project mitigations.
VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

Bennett Valley Road to Linwood Avenue:

Impact
Extensive grading would be required to construct Farmers Lane Extension south of Bennett Valley Road, significantly altering the existing hillside setting.

Mitigation Measure
Planning and design procedures for the Farmers Lane Extension Project should conform to the Goals, Objectives and Policies for Community Design that specifically address the Extension as contained within the Community Design element of the Southeast Area Plan.

Linwood Avenue to Kawana Springs Road:

Impact
Construction of the Extension between Linwood Avenue and Kawana Springs Road would require cut and fill, potentially altering contours of the hillside terrain creating visual and adverse contrasts with existing slopes.

Mitigation Measure
Planning and design procedures for the Farmers Lane Extension Project should conform to the Goals, Objectives and Policies for Community Design that specifically address the Extension as contained within the Community Design element of the Southeast Area Plan.

Petaluma Hill Road to Santa Rosa Avenue:

Impact
Construction of the Extension between Petaluma Hill Road and Santa Rosa Avenue along Yolanda Avenue would potentially require the removal of an undetermined number of existing ornamental trees along the roadside.

Mitigation Measure
A tree replacement program should be developed along Yolanda Avenue in accordance with the policies of the Area Plan to enhance the Extension corridor and compensate for the loss of existing ornamental trees.

PROPOSED PROJECTS

Project #6, Dauenhauer Ranch @ 96 acres:

Impact
Hillside grading of the site would alter the existing land form and contrast with adjacent hillsides.
Mitigation Measure
Grading concepts to minimize needed grading and provide gradual transitions between existing slopes and graded slopes to retain a natural (undisturbed) ground form appearance should be developed during project plan preparation.

Planning and design for the proposed project should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Element of the Southeast Area Plan.

Project #8, Willow Creek @ 140 acres:

Impact
Hillside grading in the east portion of the site would alter the existing land form and contrast with adjacent hillsides.

Mitigation Measure
Grading concepts to minimize needed grading and provide gradual transitions between existing slopes and graded slopes to retain a natural (undisturbed) ground form appearance should be developed during project plan preparation.

Planning and design for the proposed project should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Element of the Southeast Area Plan.

Project #10, Kawana Meadows @ 49 acres:

Impact
Grading in the central portion of the Project Site #10 would be expected to remove a substantial portion of a 60-foot high hill in order to allow for the construction of housing. The existing hill provides topographic variation and is a visual amenity at a highly visible location near the intersection of Yolanda Avenue and Petaluma Hill Road. Hill removal would be a significant impact.

Mitigation Measure
Grading concepts to minimize needed grading and provide gradual transitions between existing slopes and graded slopes to retain a natural (undisturbed) ground form appearance should be developed during project plan preparation.

Planning and design for the proposed project should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Element of the Southeast Area Plan.

Project #11, McIntosh Subdivision @ 15 acres:

Impact
Project #11 hillside grading in the east portion of the site would alter the existing land form and contrast with adjacent hillsides.
Mitigation Measure
Grading concepts to minimize needed grading and provide gradual transitions between existing slopes and graded slopes to retain a natural (undisturbed) ground form appearance should be developed during project preparation.

Planning and design for the proposed project should conform to the Goals, Objectives and Policies for Community Design as contained within the Community Design Element of the Southeast Area Plan.

PUBLIC SERVICES

SOUTHEAST AREA PLAN AND PROPOSED PROJECTS

Impact
The Santa Rosa Police Department at Plan buildout would need an additional five officers and three patrol vehicles to serve the Southeast Area at buildout (three officers and two patrol vehicles for the proposed projects).

Mitigation Measure
The City should agree to fund the additional police officers and vehicles needed for development. Timing would be keyed to development.

Impact
Development of the Southeast Area Plan at buildout would require one new fire station, one additional fire engine and nine and one-third full-time equivalent additional fire personnel.

Mitigation Measure
The City should agree to fund construction of a new fire station on the previously dedicated site for this purpose in the Southeast area, and to provide the funding necessary for the required department personnel.

Impact
Buildout of the Southeast Area Plan at buildout would generate the need for 1.5 additional elementary schools, and 0.15 equivalent of a new high school.

Mitigation Measure
Prior to permitting occupancy of housing development, the City will require proof of payment of all statutory school development fees imposed by the school districts that services the Southeast Santa Rosa Area.

Impact
Buildout of the Southeast Area Plan would require the acquisition, development and maintenance of 33.6 acres of park land.
Mitigation Measure
The City should require each current or future project sponsor in the Southeast area provide adequate park land dedication in their project proposals and/or pay the statutory in-lieu Land Dedication Fees and Park Development Fees. Park sites shown in the Draft Area Plan will be acquired as properties in the Plan area develop.

HAZARDOUS MATERIALS

**SOUTHEAST AREA PLAN**

**Impact**
Development of new housing units would result in an increase in the use and disposal of household hazardous wastes by residents, potentially affecting public health.

**Mitigation Measure**
Ensure compliance with all applicable laws and regulations for the proper handling and disposal of hazardous wastes; new development within the Plan area would be included as a participant of a Joint Powers Agency for the handling, collection and disposal of hazardous wastes.

**PROPOSED PROJECTS**

**Impact**
Removal of the existing residential structure at project site #3 (2555 Linwood Avenue Site), may result in the release of hazardous asbestos materials affecting worker safety.

**Mitigation Measure**
The contractor and hauler of the material is required to file a Hazardous Waste Manifest which details the hauling of the material from the site and its disposal, should asbestos materials be discovered prior to disturbance and removal.

CULTURAL RESOURCES

**SOUTHEAST AREA PLAN**

**Impact**
Based on what is already known about the region, it is reasonable to conclude that prehistoric cultural deposits may be found anywhere in the Plan area and subject to disturbance through development.

**Mitigation Measure**
Those portions of the Plan area that have not been subjected to archaeological field investigations should be studied as part of any development plan and/or environmental review process prior to approving a project. Mitigation could include avoidance, covering or retrieval, depending on resource location and project plans.
Impact
As the Southeast Santa Rosa Area Plan anticipates continued residential and commercial development, potential historic resources (Irwin family house and Weaver home), may be threatened with removal or destruction.

Mitigation Measure
Potential historical resources should be reviewed as part of future development plan considerations and environmental review processes. Depending on review results and assessed historical significance, mitigation could include avoidance, relocation, selective re-use or recordation.

PROPOSED PROJECTS

Project #4: 2549 Linwood Avenue

Impact
Development of the property could result in the destruction of an archaeological resource.

Mitigation Measure
An exploratory testing program should be conducted for this archaeological resource. Mitigation could include avoidance, covering or retrieval, depending on resource extent and project construction plans.

Project #6: Dauenhauer Ranch

Impact
Development of the property could result in the destruction of an archaeological resource.

Mitigation Measure 3.1.9-3
Prior to development, the area should be re-examined when the ground surface is sufficiently exposed. If an archaeological site is discovered, mitigation could include avoidance, covering or retrieval, depending on resource extent and project construction plans.

Project #7: 2375 Linwood Avenue

Impact
Development of the property could result in the destruction of an archaeological resource.

Mitigation Measure
Archaeological monitoring should take place during preconstruction vegetation removal and grading. Should prehistoric cultural deposits be discovered at that time, subsurface testing procedures would likely be appropriate for determining the boundaries, integrity and importance of the cultural deposits. Mitigation could include avoidance, covering or retrieval, depending on resource extent and project construction plans.
Project #8: Willow Creek

Impact
Development of the property could result in the destruction of an archaeological resource near Colgan Creek.

Mitigation Measure
Conduct a limited subsurface testing program to determine the boundaries of the site and nature of the cultural deposits. The site should then be capped with fill to protect it from cumulative impacts resulting from increased public access.

Impact 3.1.9-6
Development of the property could result in the destruction of an archaeological resource on an existing knoll.

Mitigation Measure
The knoll area should be re-inspected prior to construction when the ground surface is sufficiently exposed. If an archaeological site is confirmed, mitigation could include further testing, avoidance, covering or retrieval, depending on resource extent and project construction plans.

Project #9: Ellsworth Site

Impact
Development of the property could result in the destruction of an archaeological resource.

Mitigation Measure
Testing procedures should be designed to specifically determine the boundaries of the archaeological site, the depositional integrity and cultural importance of the resource. Mitigation could include avoidance, covering of retrieval, depending on resource extent and project construction plans.

Project #10: Kawana Meadows

Impact
Development of the property could result in the destruction of an archaeological resource near the south property line.

Mitigation Measure
One of the following Alternative Mitigation Measures is recommended:
- Avoidance;
- Covering;
- Excavation with analysis and preservation of materials;

Impact
Development of the property could result in the destruction of an archaeological resource in the northwest quadrant of the property.
Mitigation Measure
Prior to construction, the area should be re-examined when the ground surface is sufficiently exposed. Should an archaeological deposit be confirmed, testing procedures should be designed to specifically determine the boundaries of the archaeological site, the depositional integrity and cultural importance of the resource. Mitigation could include avoidance, covering of retrieval, depending on resource extent and project construction plans.

SOILS, GEOLOGY AND SEISMICITY

**SOUTHEAST AREA PLAN/PROPOSED PROJECTS**

**Impact**
Grading and excavation on or adjacent to existing steep slopes, whether underlain by bedrock or alluvial deposits, could create unstable slope conditions at the construction sites.

**Mitigation Measure**
Require site-specific minimal grading concepts, stability analysis and stabilization procedures, and design criteria for cut-slopes and fill-slopes, as recommended by a California Certified Engineering Geologist and Geotechnical Engineer during the design phase for each site on slopes steeper than 10 percent.

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

**Mitigation Measure**
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.

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

**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 project site where the existence of unsuitable soil conditions is known or suspected.

**Impact**
The northeast corner of the Plan area is subject to the damaging effects of surface rupture along traces of the Rodgers Creek fault.

**Mitigation Measure**
In accordance with the Alquist-Priolo Special Studies Zone Act of 1972, require the recommendations of a site-specific fault trace location and activity level investigation, to be
incorporated in the land use design for portions of projects within the Special Studies Zone that crosses the Plan area.

**Impact**
The Plan area will be subject to damaging seismically induced groundshaking during the useful economic life of the Area plan. The northeast corner of the Plan area contains site #6, which is subject to the damaging effects of surface rupture along traces of the Rodgers Creek fault.

**Mitigation Measure**
Require site-specific seismic-restraint criteria, to be incorporated in the design of slopes, foundations and structures.

**Impact**
The Area plan would increase the number of dwelling units in an area subject to seismic groundshaking with its attendant secondary effects of ground failure.

**Mitigation Measure**
All proposed modifications of each development site, and building of structures, roads and utilities should be done in accordance with the recommendations of a California licensed geotechnical and/or engineering professionals, in compliance with City ordinances and mitigation measures adopted from the EIR.

**HYDROLOGY AND WATER QUALITY**

**SOUTHEAST AREA PLAN**

**Impact**
Area Plan development 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) Undertake improvements (expansion, modification) to Colgan Creek west of U.S. 101 for a length of 2,450 feet under the direction of the Sonoma County Water Agency.

b) Undertake drainage improvements or diversions to remove the capacity problems at the Moraga drain.

c) Provide improvements to natural drainages which cross the Southeast Area Plan with the approval of the Sonoma County Water Agency and to design standards specified in the Sonoma County Flood Control Design Manual.

**Impact**
Construction activities of individual projects could result in short-term increases in erosion.

**Mitigation Measure**
a) Any projects that result in grading of an area greater than five acres shall be subject to a National Pollution Discharge Elimination System permit.
b) An erosion and sedimentation control plan shall be submitted to the City of Santa Rosa by applicants for individual projects under the Southeast Area Plan prior to grading.

c) Areas disturbed by grading for construction shall be replanted as soon as feasible to control erosion.

Impact

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

Mitigation Measure

Provide water quality protection devices in channels serving the Plan area. Maintenance of said facilities should be ensured through in-lieu fees paid to the City, or the establishment of homeowner associations.

Impact

Some areas of the Southeast Area Plan have high ground water and areas of seeps. Construction within these areas could require dewatering to allow construction and protect foundations.

Mitigation Measure

Each project within areas of high ground water should submit a geotechnical report which designates specific ground water conditions and subdrain requirements.

Impact

Construction of the Farmers Lane Extension would interrupt surface water flow and degrade water quality in the intermittent streams it crosses.

Mitigation Measure

The Farmers Lane Extension must include provision for the passage of storm flows of the tributary of Matanzas Creek and Colgan Creek. Construction shall preferably be undertaken in the dry (non-rainy) season.

Impact

Implementation of the Southeast Area Plan may reduce the availability of shallow groundwater as a source of domestic water supply.

Mitigation Measure

Encourage existing residents to connect to the City water supply as the system is installed in the Southeast Plan Area.

PROPOSED PROJECTS

Impact

Construction of the eleven projects would increase surface runoff, have the potential to affect drainage capacity at the Moraga conduit and at Colgan Creek, and possibly result in erosion and sedimentation of receiving streams.
Mitigation Measure

a) Undertake improvements to Colgan Creek under the direction of the Sonoma County Water Agency.

b) Undertake drainage improvements or diversions to remove capacity constraints at the Moraga drain.

c) Provide improvements to natural drainages which cross the Southeast Area Plan with the approval of the Sonoma County Water Agency and to the design standards specified in the Sonoma County Flood Control Design Manual.

d) Any projects that result in grading of an area greater than five acres shall be subject to a National Pollution Discharge Elimination System permit.

e) An erosion and sedimentation control plan shall be submitted to the City of Santa Rosa by applicants for individual projects under the Southeast Area Plan prior to grading.

f) Areas disturbed by grading for construction shall be replanted as soon as feasible to control erosion.

Impact

Construction of projects #6 and #10 would result in construction within seep areas, which may require dewatering and subdraining construction to allow construction and protect foundations.

Mitigation Measure

Each project within areas of high ground water should submit a geotechnical report which designates specific ground water conditions and subdrain requirements.

Impact

Construction of Projects #6 and #8 would result in the disruption of a natural drainage channel.

Mitigation Measure

Improvements which may be necessary to the natural drainages within the Area Plan 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.

VEGETATION AND WILDLIFE

SOUTHEAST AREA PLAN AND PROPOSED PROJECTS

Impact

Project construction, inclusive of projects #6, #8, #10 and Farmers Lane Extension would result in the loss of an undetermined number of Valley Oaks and an undetermined acreage of Valley Oak Woodland.
Mitigation Measure
Avoid constructing in areas of oaks and oak woodland. Protect areas of natural oak regeneration. Compensate and replace trees lost to construction.

Impact
Construction within site #6 and within an area south of Linwood Avenue where the Farmers Lane Extension would be located where no residential development is currently proposed, could result in the loss of Freshwater Emergent Wetlands.

Mitigation Measure
Consultations with the California Department of Fish and Game and U.S. Fish and Wildlife Service would be necessary regarding project design and construction. A Corps of Engineers wetland delineation would be required. Mitigation would include either avoidance or the creation of wetlands with wildlife values at least equivalent to those destroyed by project construction.

Impact
Project construction, inclusive of projects #6, #10 and Farmers Lane Extension in the southeast portion of the Plan area could result in the loss of an undetermined acreage of Coastal Oak Woodland.

Mitigation Measure
Avoid constructing in areas of oaks and oak woodland. Protect areas of natural oak regeneration. Compensate and replace trees lost to construction.

Impact
Construction, inclusive of projects #6 and #8, and Farmers Lane Extension, could result in the placement of fill into Colgan Creek and unnamed tributaries of Colgan and Matanzas Creeks, and alteration of the hydrology surrounding seeps could result in the potential for loss of wetland acreage.

Mitigation Measure
Consultations with the California Department of Fish and Game and U.S. Fish and Wildlife Service would be necessary regarding project design and construction. A Corps of Engineers wetland delineation and 1603 Streambed Alteration Agreement from the CDFG would be required. Mitigation would include either avoidance or the creation of wetlands with wildlife values at least equivalent to those destroyed by project construction.

Impact
Construction activity associated with the proposed Farmers Lane Extension could adversely affect water quality in several creeks and intermittent drainages.

Mitigation
Ensure construction practices which would avoid siltation or contamination of existing watercourses.

Impact
Project construction, inclusive of projects #6, #8, #10 and Farmers Lane Extension could result in the loss of nesting habitat for raptorial birds, which are protected by State law.
Mitigation Measure
Schedule grading and construction activities so that no activities take place while a raptorial species is nesting or rearing young, and conduct activities so that individual hawks are not harmed.

AIR QUALITY

SOUTHEAST AREA PLAN AND PROPOSED PROJECTS

Impact
Development of the Southeast Area Plan (or construction of Farmers Lane Extension/Infrastructure, or construction of the eleven proposed projects), would result in construction and operational toxic air emissions.

Mitigation Measure
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.

NOISE

SOUTHEAST AREA PLAN AND PROPOSED PROJECTS

Impact
Development of the Southeast Area Plan (or construction of Farmers Lane Extension/Infrastructure, or construction of the eleven 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
Traffic volumes resulting from Plan buildout Plan (or construction of Farmers Lane Extension/Infrastructure eleven proposed projects), would result in noise impacts on adjacent and nearby land uses.

Mitigation
Construct sound walls and/or berms or provide setbacks acceptable to the City of Santa Rosa along major arterials to reduce exterior noise levels.
UNAVOIDABLE, SIGNIFICANT ADVERSE IMPACTS

LAND USE

SOUTHEAST AREA PLAN

- Implementation of the Area Plan would result in the loss of 297.3 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

- Construction of the Farmers Lane Extension (alone, without the proposed project) would result in the loss of approximately 18 acres of Farmland of Local Importance as designated by the State Department of Conservation and Sonoma County. (Note: This 18 acres is also included in the 297.3 acres for the entire Plan Area.)

PROPOSED PROJECTS

- Construction of the eleven proposed projects could result in the loss of 209.6 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

The project, along with cumulative traffic growth, would have a significant impact (LOS "F" 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.

However, the Southeast Area's contribution to this traffic problem would be relatively modest. During the PM peak hour, only one to two percent of the freeway traffic would be caused by traffic going to or from the Southeast Area. 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 U.S. 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.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

- Buildout of the Southeast Area Plan would convert what is currently a semi-rural to rural setting to an urban setting. Plan development would constitute a significant change in visual conditions within southeast Santa Rosa. Thus the impact would be significant and unavoidable.
Grading to construct the Extension in hillside terrain from Kawana Springs Road south to Petaluma Hill Road would potentially require the removal of existing oak trees. In the absence of grading plans for the project, the exact number of oak trees required for removal cannot be determined. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

PROPOSED PROJECTS

Project #6, Dauenhauer Ranch @ 96 acres:
- Project #6 construction would require the removal of about six oak trees. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

Project #8, Willow Creek @ 140 acres:
- Project #8 construction would require the removal of an undetermined number of oak trees, but probably less than 15 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

Project #10, Kawana Meadows @ 49 acres:
- Project #10 construction would require the removal of an undetermined number of oak trees, but probably about 25 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

SOILS, GEOLOGY AND SEISMICITY

SOUTHEAST AREA PLAN
- Alignment of the Farmers Lane Extension project would be subject to the damaging effects of surface rupture where the Extension crosses at least one trace of the Rodgers Creek fault.

VEGETATION AND WILDLIFE

SOUTHEAST AREA PLAN
- Construction of the proposed Farmers Lane Extension would subject existing wildlife to road kill, disrupt daily wildlife movement and migration corridors, and fragment wildlife populations. Growth induced by proximity of the extended roadway could further reduce wildlife habitat and increase pressures on wildlife.
AIR QUALITY

SOUTHEAST AREA PLAN

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

• Southeast Area Plan development would result in vehicular, home heating, home cooling, and wood burning emission. (S)

• Development of the Farmers Lane Extension/Infrastructure construction would cause increases in air pollutants over the entire period of construction.

PROPOSED PROJECTS

• The development of the eleven proposed projects would cause increases in air pollutants over the entire period of construction.

• The proposed eleven projects would result in vehicular, home heating, home cooling and wood burning emissions.
ALTERNATIVES

NO AREA PLAN

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

Without the Area Plan, the Southeast 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 in Southeast 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, cumulative development impacts increasing congestion on U.S. 101, converting a semi-rural to rural setting to urban development, removal of an undetermined number of specimen oak trees, subjecting the proposed Farmers Lane Extension project to the damaging effects of surface rupture where the Extension would cross the Rodgers Creek Fault, Farmers Lane Extension obstructing a wildlife corridor within a tributary to Matanzas Creek, and the loss of an undetermined acreage of Valley-Foothill Riparian Woodland.

Concerning traffic, the land use changes proposed in the Southeast 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.

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 Southeast 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. Without the Southeast Area Plan, environmental review that complements regional growth management
strategies 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 rather 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 2,700 fewer weekday vehicle trip ends would be generated by the project (the Area Plan), which equates to about 200-250 fewer PM peak hour trips. The reduction in trips indicates that the Project would result in better, or 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 involves Caltrans' 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 generally provides greater capacity along US 101, and therefore, in some areas (primarily south of Hearn Avenue to Todd Road) 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 than under 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.

**Santa Rosa Avenue**

The mitigated project option provides for somewhat better levels of service than the No Project alternative (generally "C" rather than "D"). The unmitigated project, however, would result in LOS "F".

**Petaluma Hill Road**

Under the project alternative, LOS is comparable to the No Project alternative. With mitigations, the Project would make LOS somewhat better than the No Project alternative.
### 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-Day Trip Ends</th>
<th>Total Daily Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-349 DU</td>
<td>10/DU</td>
<td>-3,490</td>
</tr>
<tr>
<td>Multifamily (Attached)</td>
<td>+400 DU</td>
<td>7/DU</td>
<td>+2,800</td>
</tr>
<tr>
<td>Commercial(^1)</td>
<td>-39,900 sq. ft.</td>
<td>50/1,000 s.f.</td>
<td>-1,995</td>
</tr>
<tr>
<td>TOTAL</td>
<td>---</td>
<td>---</td>
<td>-2,685</td>
</tr>
</tbody>
</table>

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

**DU** = dwelling unit;  
**s.f.** = gross usable square feet.
Brookwood Avenue

LOS would be comparable or slightly better with the project than with the No Project alternative. The adopted 1991 General Plan Update includes the Farmers Lane Extension, but uses a somewhat different alignment to connect to Kawana Springs Road at Petaluma Hill Road. Also, substantially different connections would be required at the freeway ramps (Hearn Avenue interchange). The current plan (Yolanda alignment) was preferred over the General Plan alignment because Kawana Springs Road between Santa Rosa Avenue is a narrow road with single family homes fronting it, and would require loss of large oak trees. All, the connections at the Hearn Avenue/US 101 interchange would be more difficult.

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 Southeast 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 trip generation by up to 6-8% per dwelling unit.¹

ALTERNATIVE CIRCULATION PLANS

No Farmers Lane Extension

Under the alternative of No Farmers Lane Extension, it is assumed that the Southeast Area Plan project would move forward as planned. Under this alternative, land which would otherwise have been used for the Extension project would likely be utilized for additional housing.

The No Farmers Lane alternative would not mitigate the significant unavoidable impacts identified for the Area Plan project. Utilizing the potential Farmers Lane Extension right-of-way for Area Plan housing would still be expected to generate the significant impacts of oak tree removal and loss of 18 acres of Farmland of Local Importance. However, there would be no crossing of the Rodgers Creek fault by the Extension, and damaging effects of fault rupture on the Extension would be eliminated.
1. Summary

The major issue with respect to the No Farmers Lane alternative is traffic and circulation. Overall, intersection service levels would generally be worse without the Farmers Lane Extension. In a few cases, the Extension adds traffic on certain routes, reducing the speed and sometimes the letter LOS on that arterial segment. In most cases, the reduced travel speeds are not significant.

Deleting this arterial results in additional vehicle miles of travel (VMT) on a variety of different streets and highways. Volumes would increase significantly on Eaton Avenue, Meda Avenue, Brookwood, Gordon, some portions of North Kawana Springs Drive, some portions of Petaluma Hill Road (primarily north of Yolanda Avenue), US 101, and Highway 12. The changes in freeway volumes are significant in most, but not all, areas. This alternative generates the highest amount of vehicle-miles of travel (VMT) of any of the alternatives tested. VMT is an important measure of transportation system performance, because it is closely related to user costs, accident potential, noise, and air quality impacts.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 9,100 miles per day. While these seems like a small amount, cumulated over a year, it represents on the order of 2.7 million miles. Use a fairly conservative cost of vehicle operations of 15 cents/mile, and making no allowance for travel time savings, the user costs savings due to the Extension would thus amount to over $400,000 per year. Using an average fuel economy of 22 MPG, the equivalent fuel savings would be more than 120,000 gallons of gasoline per year.

Alternative Circulation

This option provides a connection from Farmers Lane to Aston-Allen Way Extension, and an easterly extension of Yolanda Avenue, from Petaluma Hill Road connecting to Eaton. A negative impact is that Eaton, which bisects the Southeast Area, becomes a through street with relatively high traffic volumes. Overall, arterial LOS is a little better in some areas, and a little worse in others, with this "Hybrid Alternative." The Hybrid and the Project generally provide comparable arterial service levels overall. The letter LOS on arterial segments is identical in most cases, and the differences are not statistically significant. The VMT generated by this alternative is higher than for the Project, but less than for the No Farmers Lane Extension alternative.
ALTERNATIVE AREA PLANS

Four Alternative Sketch Plans prepared for the Southeast 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 hillsides, rental vs. for sale housing mix, affordable housing, park and recreation facilities, circulation, potential air quality and noise impacts, mitigating potential traffic impacts, protection of the Kawana Springs/Colgan Creek corridor, oak tree preservation, 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. 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 four sketch plans. Either of the four sketch plans was not selected because of greater population, lack of diversity in housing type, poor neighborhood identity, increased neighborhood traffic resulting from proposed circulation patterns, and other planning and environmental factors.

For Sketch #1, the demand on public services and utilities would be greater than for the other Sketch Plans or the Preferred Sketch Plan because of the greater population. Traffic generation and resultant impacts on intersection service levels, air quality and increased noise would also occur because of the larger population. Visual quality impacts, potential increases in stormwater runoff and vegetation and wildlife impacts would be about the same as for the Preferred Sketch Plan because the development area would remain the same.

The potential environmental impacts for Sketch #2 would be about equal to Sketch #1 because there would not be a substantial difference in the number of dwelling units within the Plan area. Sketch #3 impacts would be about equal to the Preferred Sketch Plan because the total dwelling unit counts of both plans are similar. Sketch Plan). It was determined that Sketch #3 would not provide for the creation of neighborhoods as well as Sketch Plans #1 & #2, and there would be a reduced diversity of housing types.
Sketch Plan #4 would generate environmental impacts about equal to Sketch Plans #1 and #2 because of the similar residential unit count. However, it was determined that creating livable neighborhoods under Sketch Plan #4 would be difficult due to the introduction of major arterial streets through the study area.

Thus, it is considered that the unavoidable, significant adverse environmental impacts of the Preferred Sketch Plan would be fewer in number, and probably of less significance than for either of the alternative sketch plans.

In support of this conclusion, the Preferred Sketch Plan became the Draft Area Plan through the Phase I Screening Analysis conducted prior to preparing the Draft EIR. Because there were no Plan changes required at that time to mitigate significant impacts which could otherwise not be mitigated by accepted standards, the Draft Area Plan, which is examined in this EIR, is essentially the same as the Preferred Sketch Plan.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

SOUTHEAST AREA PLAN

Without the Area Plan, the Southeast 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 Southeast 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 and noise 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.

There is no possible alternative location for Farmers Lane Extension in the north part of the Southeast Area Plan. This is because the Extension would need to connect with the existing terminus of Farmers Lane at Bennett Valley Road. Thus, the Extension would need to cross the Rodgers
Creek Fault and wildlife corridor as explained above prior to continuing through the Southeast Plan area. The significant adverse impacts of constructing the Extension at this location would occur in any event.

The Environmentally Superior Alternative for the Extension would be the Extension project with the recommended mitigation measures included in the project. This would comprise Farmers Lane Extension as the Mitigated Project alternative.

**PROPOSED PROJECTS**

Because most of the significant impacts of the eleven project proposals 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.

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2. PROJECT DESCRIPTION

2.1 BACKGROUND AND PROJECT ORIGINATION

SOUTHEAST AREA PLAN

The preparation of a detailed plan for Southeast 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 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 ----".

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

- To identify the most desirable balance and location of land uses, both public and private.
- To devise a financing plan for funding public facilities.
- To develop a context for identifying planning, development and environmental issues earlier rather than later in the development process.
- To offer the development of an infrastructure phasing program that facilitates a logical order of development.
- To provide for a coordinated approach to establishing and reinforcing a sense neighborhood/community identity.

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 March 1992, Phase I activities included reviewing existing data for the Southeast Area, including current General Plan policies for the area and a Draft Environmental Impact Report for the Farmers Lane Extension project.¹

Next, draft policies and neighborhood concepts for the Southeast Area were prepared, including the identification of area-wide issues. A Citizens Committee then reviewed suggested policies and neighborhood 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 Southeast Area.

City staff of the Department of Community Development then prepared alternative sketch plans for the Southeast Area. The alternative sketch plans were then reviewed by the Citizens Committee, City Planning Commission and City Council and a Preferred Draft Area Plan was prepared based on deliberations by these bodies.

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 Southeast Santa Rosa Area Plan.

Coinciding with preparation of the Draft EIR, a screening analysis of the Preferred Area Plan was conducted. The purpose of the screening analysis was to enable City staff to revise or amend the Preferred 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.² The resulting Draft Area Plan would then be the Area Plan project to be addressed in detail in the Area Plan EIR.

As a result of the screening analysis, no significant unavoidable impacts that could not be mitigated through normal measures were specifically identified that would have required an amendment or change to the Preferred Area Plan Map. Several impact areas concerning wetlands, oak tree removal and circulation were noted in the screening analysis that would require special attention in the EIR. For these reasons, the Preferred Area Plan is now called the Draft Area Plan in this EIR. During
EIR preparation, the Southeast 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. In addition, the City has accepted eleven specific project proposals to be included within the Southeast Area Plan study area EIR.

It should also be noted that over the past twenty years, both the City of Santa Rosa and Sonoma County have discussed extending the existing Farmers Lane arterial from State Highway 12 south through the southeast quadrant of Santa Rosa. Both the City and County have adopted General Plans which include the Farmers Lane Extension project. This project is described below in Section 2.2.

As noted above, 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 Southeast Area. These services are discussed below in Section 2.2.

PROPOSED PROJECTS

As noted above, eleven individual project proposals located within the Southeast Area Plan study area have been submitted to the City of Santa Rosa for review and approval. Along with the Draft Area Plan, these eleven project proposals are evaluated in this EIR. The Area Plan itself and eleven project proposals are defined in more detail below.

2.2 SOUTHEAST AREA PLAN LOCATION, COMPONENTS AND SCHEDULING

LOCATION

The Southeast Area Plan encompasses 640 acres in the southeast portion of the City of Santa Rosa in Sonoma County (see Figure 2.2-1, Regional Location Map). Southeast Santa Rosa is generally defined by State Highway 12 on the north and U.S. Highway 101 on the west.
More specifically, the Southeast Area plan is bounded by Bennett Valley Road to the northeast, and Petaluma Hill Road and Moraga Drive on the west (see Figure 2.2-2, Site Location Map). The east and south margins of the Area Plan do not follow existing roadways and are located in undeveloped areas.

Most of the Area Plan exists within the Santa Rosa Urban Boundary, with the exception of about 60 acres of land in the southeast portion of the Plan area. No development proposals have been submitted to the City for the area outside the Urban Boundary (see Figure 2.2-3, Southeast Santa Rosa Area Plan).

COMPONENTS
Draft Southeast Area Plan

For the most part, as a long-range development program, the Southeast Area Plan reflects the Santa Rosa General Plan land use diagram and General Plan development policies relevant to the Southeast 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 Draft Southeast Area Plan, some of the basic concepts of the General Plan which were considered included the number of dwelling units projected for the Southeast 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 hillsides, creeks and significant trees. The Southeast Area Plan 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 Southeast area, the Area Plan’s Land Use map refines the General Plan map to reflect and responds to physical and environmental opportunities and constraints unique to the Southeast 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 Southeast 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 Draft Southeast Area Plan).

Thus, the policies of the Draft 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 restrictive policy applies. However, 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). To the extent the arrangement of land uses as shown on the Draft Area Plan map are different than the General Plan map, adoption of the Draft Area Plan by the City Council would require an amendment to the General Plan map.

Infrastructure

Development within the Southeast 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.

Farmers Lane Extension. Perhaps the largest infrastructure improvement would be the Farmers Lane Extension project (see Figure 2.2-4 for the approximate location of the Farmers Lane Extension project). This project, approximately two miles in length, would be constructed as an arterial roadway extending from Bennett Valley Road on the north, proceed south through the Southeast Area Plan, and then curve to the west linking up with Yolanda Avenue at Petaluma Hill Road.

Between Santa Rosa Avenue and the intersection of Yolanda Avenue/Petaluma Hill Road, the Extension would consist of one travel lane in each direction, with a center two-way left turn lane. The Extension would be constructed within the existing right-of-way. From the intersection of Yolanda Avenue/Petaluma Hill Road to Kawana Springs Road, the Extension would contain two lanes for eastbound traffic and one lane for westbound traffic. From Kawana Springs Road to Bennett Valley Road, the Extension would consist of four lanes with two lanes of traffic in each direction (see Section 3.1.4, Traffic and Circulation for further elaboration). Figure 2.2-5 illustrates the conceptual cross sections for Farmers Lane Extension.

As noted in the Santa Rosa General Plan: "Construction of Farmers Lane Extension between Bennett Valley Road and Highway 101 as an arterial, to allow traffic to bypass the already congested interchange between Highways 12 and 101 and to serve adjoining development." A brief history of the Farmers Lane Extension proposal is contained in Appendix A of this EIR. More specifically, the objectives in building the Farmers Lane Extension project include the following:
Figure 2.2-4

Legend:
- Dashed line: Urban Boundary
- Solid line: Area Plan Boundary
- Shaded areas: Project Proposals Submitted

Locations:
- Kawana Springs Road
- Yolanda Avenue
- Eaton Avenue
- Linwood Avenue

Approximate Location of Proposed Farmers Lane Extension
FARMERS LANE EXTENSION ARTERIAL CROSS SECTIONS

A: TYPICAL

B: HILLSIDE

C: THREE LANE TYPICAL

SOURCE: CITY OF SANTA ROSA
2. Project Description

- To provide an additional cross-town arterial for Santa Rosa traffic.
- To provide a new road to connect residential areas in the northeast part of the City and employment centers in the southwest.
- To implement General Plan policies to create a scenic roadway with bicycle lanes and a landscaped median.

Other Infrastructure. A complete inventory of required infrastructure improvements is contained in the Southeast Area Plan. However for EIR purposes, the following provides an overview of the planned improvements for sanitary sewers, storm sewers and water supply.

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

While there are several small collector mains that may serve limited portions of the Southeast area, the intent is to provide a new trunk sewer from the intersection of Santa Rosa Avenue/Yolanda Avenue which will connect to an existing trunk sewer in Santa Rosa Avenue (see Figure 2.2-6, Sanitary Sewer System). The Santa Rosa Avenue trunk sewer, which was recently upgraded, was designed to serve the Southeast area from Santa Rosa Avenue to the eastern Urban Boundary.

The new trunk sewer will consist of an 18-inch diameter line extending from Santa Rosa Avenue under Yolanda Avenue to Petaluma Hill Road, and then turn north to a point about 350 south of Breeze Way. The trunk sewer will then proceed north under Petaluma Hill Road as a 15-inch diameter facility to Santa Ana Drive, proceed east under Santa Ana Drive as a 12-inch facility to a point west of Moraga Drive, and then continue as a 10-inch diameter facility in an east direction beneath Santa Ana Drive to Moraga Drive at Aston Avenue, where it will join the existing upstream system.

Collector sewers in an easterly direction are planned out of the above described trunk line along Kawana Springs Road and along the southerly property line of Kawana School.
Storm Sewers. Construction would require the installation of a County drainage facility under Petaluma Hill Road (see Figure 2.2-7). This would include installing a 24-inch diameter pipe from Kawana Springs Road south to Yolanda Avenue. South of Yolanda Avenue, the pipe diameter would be increased to approximately 30 inches. Additionally, drainage improvements to remove the capacity problems at the Moraga drain in the north portion of the Plan Area would be undertaken. The Colgan Channel at Corby Avenue 0.2 miles west of Santa Rosa Avenue would need to be upgraded because the channel has inadequate capacity for the 25-year design flow. Other, additional project site storm drain improvements would be required for individual projects within the Plan area.

Water Supply. Lower elevations within the Plan area in the vicinity of Petaluma Hill Road will be served by existing water mains. The remainder of the Plan area will require additional facilities for the provision of water service in the Plan area. A conceptual plan for a higher level water system with the provision of water tanks has been included in the Area Plan. The water supply system is being designed by the City of Santa Rosa to handle the water supply needs of the Southeast area at buildout.

The Plan area is subdivided in three basic water zones. The lower level is called the aqueduct zone, which will serve up to elevation 210. The existing mains beneath Aston Avenue, Moraga Drive, Petaluma Hill Road and Yolanda Avenue will serve as sources for this zone. All mains are eight-inches in diameter except for those under Yolanda Avenue and Kawana Springs Road which are 12-inches in diameter. Most of these mains are relatively new and in good condition.

The middle zone which extends from the approximate elevation 210 to approximate elevation 320 to the upper reaches of the Plan area will require the construction of improvements. In general, pumping stations and upper level storage facilities in the amount of one million gallons will need to be constructed to serve properties above elevation 210, and may serve some properties below that elevation depending on the ultimate configuration of streets within the Plan area (see Figure 2.2-8, Water System).

Engineering considerations included in the design of the pump stations, storage facilities and mains are fireflow requirements, domestic demands, elevations served and code requirement. A 16-inch water transmission main under Bennett Valley Road is currently under construction and will provide emergency backup service to the upper zones along the future Farmers Lane Extension. A proposed
FIGURE 2.2-7

Existing Underground Drainage
Existing Channel & Ditches
Existing Creeks
Improvement to Existing Channel
Future Underground Conduit

Area Plan Boundary

SOURCE: CITY OF SANTA ROSA, DEPARTMENT OF COMMUNITY DEVELOPMENT
Proposed Water Aqueduct Intertie (conceptual location) Proposed by Sonoma Co. Water Agency
Existing Water Mains ≥ 12"

Proposed Water Mains ≥ 12" Proposed by City of Santa Rosa

Potential Water Tank Storage Locations

Creeks
Area Plan Boundary

SOURCE: CITY OF SANTA ROSA, DEPARTMENT OF COMMUNITY DEVELOPMENT
water main greater than 12-inches in diameter is proposed for installation in the shoulder of the proposed Farmers Lane Extension alignment.

SCHEDULING

Development of the Southeast 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 and regulation.

It is not clear how current economic conditions would determine a horizon year for 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 describes the 11 development projects proposed by individual project sponsors within the Southeast Area Plan boundary. The project descriptions are as presented in the individual project applications. Figure 2.2-4 illustrates the location of each project within the Southeast Area Plan. Figures 2.2-9 through 2.2-19 illustrate project site plans as submitted by the respective project sponsors. See also Table 2-1 for a listing of the projects and their characteristics.

Project #1: 1815 Meda Avenue Site

Developer. Burbank Housing Development Corporation (non-profit housing developer)

Location. 7.41 acre site located at 1815 Meda Avenue, between Moraga Drive and Meda Avenue, south of Aston Avenue and east of Kawana School. Assessor's parcel number (APN) 04-031-36.

Project Description. The project proposal is to develop 92 multi-family housing units for low and moderate income families, at a gross density of 12.4 units per acre. The project sponsor anticipates that the project would include both rental and ownership units, arranged on the parcel as shown in Figure 2.2-9. The buildings would consist of 44 two-story townhouses and 48 connected flats held
Table 2-1
SOUTHEAST AREA PLAN -- PROJECT PROFILES AND PLAN SUMMARY

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<tr>
<th>PROJECT</th>
<th>Single Family Units</th>
<th>Multi Family Units</th>
<th>Commercial Space Sq Ft.</th>
<th>Developed Parkland Acres</th>
<th>Open Space Acres</th>
<th>Total Residential Units</th>
<th>Total Percentage Share</th>
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1/ Existing Land Use represents the total number of existing dwellings in the study area minus units to be demolished.
2/ Plan Surplus represents the difference between the potential buildout of the Preferred Area Plan and the total of the Existing Land Use and the 11 proposed projects.
3/ Percentage Share represents that column's percentage share of the Area Plan Total.

SOURCE: EIP Associates.
PROJECT SUMMARY

Townhouses
- 44 - 3 Bedroom Units

Stacked Flats
- 12 - 2 Bedroom Units
- 24 - 3 Bedroom Units
- 12 - 4 Bedroom Units
- 92 TOTAL UNITS

Parking
- 190 Cars for Units
- 7 cars at Community Building

ENTRY PLAZA
- Small Seating Area w/Low Walls & Special Paving

OVERLOOK TERRACE
- Outdoor Space Associated w/ Community meeting Building
- Permeable Unit Paving and Low Seat Walls
- Flowering Shrubs & Groundcover at the Base of Existing Large Cedar Tree

COMMUNITY MEETING & DAYCARE FACILITY
- 6,000 Square Foot Building
- Large Fenced Play Area w/Veans over the Central Green
- Parking for 7± cars

TRANSITION SLOPES
- Heavy Conifer Plantings for Visual Screening
- Native Shrubs and Grasses to Stabilize Slopes
- Natural Play Areas for Tree Forts

LEGEND
- 2 Story Townhouse
- Existing Tree
- Stacked Flats
- Canopy Tree
- Existing Conditions
- Proposed Transition Slope

- Project Site Boundary

SOURCE: GLANVILLE ASSOCIATES
under the condominium form of ownership. The project would also include a 6,000 square foot community meeting and daycare facility with fenced play area.

Utilities would be extended into the site after annexation. Following annexation and the provision of utilities, the project is proposed to be developed within a two to three-year time frame.

Project #2: 2307 Linwood Avenue Site

Developer. Niles

Location. 4.26 acre site located at 2307 Linwood Avenue, between Linwood and Eaton Avenues. APN 038-253-03 and 04. Owner is Niles.

Project Description. The project would subdivide the site into 14 residential lots, at a density of 3.3 units/acre as shown on Figure 2.2-10. The property currently contains two residential structures. New lots would be situated around the existing residences as shown on Figure 2.2-10. The lots would range from 7,189 to 10,801 square feet in area.

The project includes construction of a residential street and cul-de-sac to City of Santa Rosa standards. Street access would be provided from Eaton Avenue. Sewer, water and storm drain utilities would be constructed within the proposed street after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #3: 2555 Linwood Avenue Site

Developer. Chapdelaine

Location. 0.94 acre site located at 2555 Linwood Avenue, between Linwood and Eaton Avenues. APN 044-033-06. Owner is Chapdelaine.

Project Description. The project would subdivide the property into five residential lots, at a density of 5.3 units per acre. The lots would range from 5,275 to 6,433 square feet in area as shown on
Figure 2.2-11. The property currently contains one residential structure which is planned to be removed.

The project includes construction of an access street and cul-de-sac street in accordance with City standards. Street access would be provided from Linwood Avenue. Sewer, water and storm drain utilities would be constructed within the new street after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #4: 2549 Linwood Avenue Site

Developer. Howerton

Location. 3.49 acre site located immediately west of Project 3 between Eaton Avenue and Linwood Avenue. APN 044-033-10 and 11. Owner is Howerton.

Project Description. The project would subdivide the site into 14 single family residential lots, at a density of 4.0 units per acre as shown on Figure 2.2-12. The lots would range from 5,024 to 15,257 square feet in area. The property currently contains one residential structure which is occupied and planned to be saved.

The project includes construction of two cul-de-sac streets in accordance with City standards. Six residential lots would be served by a cul-de-sac from Eaton Avenue, and the remaining eight lots would have access from a cul-de-sac from Linwood Avenue. Sewer, water and storm drain utilities would be constructed within the new streets after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #5: 2595 Linwood Avenue Site

Developer. Veale

Location. 5.0 acre site located at 2595 Linwood Avenue, between Linwood and Eaton Avenues. It is immediately south of Projects #3 and #4. APN 044-033-04. Owner is Veale.
Project Description. The project would subdivide the property into 28 single-family residential lots, at a density of 5.6 units per acre as shown on Figure 2.2-13. The lots would range from 3,586 to 9,100 square feet in area. The property currently contains a mobile home and one barn, which would be removed from the site prior to subdividing the land.

The project includes construction of a street built to City standards that would run the length of the site between Linwood and Eaton Avenues. Sewer, water and storm drain utilities would be constructed within the new street after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #6: Dauenhauer Ranch

Developer. Dauenhauer

Location. 95.93 acre site located east and north of Linwood Avenue. Owner is Dauenhauer.

Project Description. The project proposal is to annex 95.93 acres of land to the City of Santa Rosa, and construct the following:

- 90 5,000 square foot single-family lots
- 45 4,000 square foot single-family lots
- 34 3,200 square foot single-family lots
- 36 townhouses
- 21 custom single-family lots

Subdivision of the property would therefore be capable of accommodating 226 dwelling units. In addition, a 2.16 acre neighborhood park is proposed for the project as indicated on Figure 2.2-14.

The 21 custom lots would be disbursed among the 60 acres located east of the proposed Farmers Lane Extension project, which would bisect the site. Access to the site would be via Linwood Avenue and Farmers Lane Extension. The custom lots would be accessed via a single street and a series of private drives.
The bulk of site development would take place on the western, flatter portion of the property, west of the proposed Farmers Lane Extension project at an overall density of 5.7 units per acre. The townhouses would be located at the western edge of the property. Most of the townhouses would be serviced from a private drive along the back of the units with the dwellings situated above parking. Front doors would be accessed from the public street. Some units would have the garage attached to the unit on the main level.

Development on the northwest portion of the property would consist primarily of single-family homes on lots that would be a minimum of 65 feet wide and 90 feet deep. Home sizes on these lots are proposed to range from 1,800 square feet to 3,000 square feet. The area south of the street which transverses the site in an east-west direction (see Figure 2.2-14) would consist of lots with minimum widths of 40 feet and 50 feet. Both lot types would have a minimum depth of 80 feet. The narrower lots would feature cottage type single family homes with a single car or tandem type garage. The wider lots would feature similar homes with a double garage. The project application indicates that these lots would contain homes of a design style and size (cottages and bungalows) built through the State in the 1920's and 1930's.

A linear strip of open space is proposed adjacent to the Farmers Lane Extension project, accessible via two pedestrian walkways connecting to the internal portion of the site. The 2.16 acre park is planned to be the focus of the development, and faced by homes of each product type. It is proposed that overhead canopy trees be provided in the project, along Farmers Lane Extension, the site’s north boundary and around the 2.16 acre park.

Sewer, water and storm drain utilities would be constructed within the new streets after annexation of the property to the City of Santa Rosa. There is no specified schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #7: 2375 Linwood Avenue Site

Developer. Bosco

Location. 10.0 acre site located at 2375 Linwood Avenue, between Linwood and Eaton Avenues. It is immediately south of the Project #2 site. APN 044-033-01 and 038-253-02. Owner is Bosco.
Project Description. The project would annex 10 acres of land into the City of Santa Rosa and subdivide the site into 53 single-family residential lots, at a density of 5.3 units per acre (see Figure 2.2-15). The lots would range in size from 4,135 to 9,545 square feet, with an average lot size of approximately 5,808 square feet.

The project includes construction of an access street connecting Linwood and Eaton Avenues, and two culs-de-sac street in accordance with City standards. Access to the lots would thus be provided from Linwood and Eaton Avenues. Sewer, water and storm drain utilities would be constructed within the new streets after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

Project #8: Willow Creek Site

Developer. Condiotti

Location. 140 acre site bounded by Petaluma Hill Road on the west, the Santa Rosa Urban Boundary on the east, Kawana Springs Road on the south, and a west to east horizontal line on the north between Petaluma Hill Road and the Urban Boundary south of the Kawana School site (see Figure 2.2-16).

Project Description. The project includes a portion of the Farmers Lane Extension project which would bisect the eastern half of the site. The project is proposed to include 493 single-family detached homes and 198 multi-family units for a total of 691 residential units at a gross density of 4.9 units per acre. There would also be 10,000 to 15,000 gross square feet of commercial space on a 9.1 acre "Town Center" site directly south of the proposed extension of Eaton Avenue.

Open space would include about 4 acres along Colgan Creek, and an additional 12 acres of neighborhood and community park facilities for a total open space and park area of about 16 acres.

The project includes construction of access streets connecting the extension of Linwood and Eaton Avenues, and Petaluma Hill Road and the Farmers Lane Extension project. Several culs-de-sac
SITE PLAN
PROJECT #8: WILLOW CREEK

FIGURE 2.2-16

Source: City of Santa Rosa

FEET

0 200 400

Town Center (Commercial) 9.1 Acres
Passive Park 4.0 Acres
Area Plan Boundary

Attached Units 7.7 Acres
Attached Units 2.1 Acres
Attached Units 4.3 Acres
Park Facility 7.5 Acres
streets in interior portions of the project site would also provide access to most of the proposed single-family units (see Figure 2.2-16 for the single-family lotting pattern). Sewer, water and storm drain utilities would be constructed within the new streets after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing and developing the parcel, which would occur after annexation and the installation of utilities.

**Project #9: Ellsworth Site**

**Developer.** Ellsworth

**Location.** 4-acre site located on the east side of Gordon Avenue at its existing southern terminus. APN 14-641-13. The project site is situated immediately east of the Sonoma County Fairgrounds and Santa Rosa Little League Park.

**Project Description.** The project includes subdividing a four acre site to allow the construction of 10 duplexes and 12 townhouses for a total of 32 units at an overall density of eight units per acre (see Figure 2.2-17).

Along with the Dauenhauer Ranch project to the south (Project #6), it is proposed that Allen Way be extended approximately 800 feet from its existing terminus at the west end of the site to connect with the proposed Farmers Lane Extension project to the east. Access to the site would be via the extension of Allen Way.

Sewer, water and storm drain utilities would be constructed within the new street. The property is one of two parcels proposed for development within the Southeast Area Plan that is within the Santa Rosa City Limits (see Figure 2.2-4). There is no proposed schedule for subdividing the parcel.

**Project #10: Kawana Meadows Subdivision**

**Developer.** Wick

**Location.** 48.6-acre site located on the east side of Petaluma Hill Road, roughly opposite the Yolanda Avenue/Petaluma Hill Road intersection, south of Kawana Springs Road as shown on Figure 2.2-18.
SITE PLAN
PROJECT #10: KAWANA MEADOWS

FIGURE 2.2-18

SOURCE: CITY OF SANTA ROSA

Project Site Boundary

Commercial Area
Project Description. The project proposal is to subdivide the parcel in order to construct 81 single-family residential units and 41 multi-family units, for a total of 122 dwelling units at a gross density of about 3 units per acre (approximate 40 acre housing area). The remaining approximate eight to nine acres would contain 110,000 gross square feet of commercial space and reserve a lot adjacent to Kawana Springs Road for a future fire station.

The Kawana Meadows Subdivision is one of two parcels within the Southeast Area Plan that is within the Santa Rosa City Limits (see Figure 2.2-4). Sewer, water and storm drain utilities would be constructed within the new streets. There is no proposed schedule for subdividing the parcel.

**Project #11: McIntosh Subdivision**

**Developer.** McIntosh

**Location.** 14.8-acre site bounded on the west and south by Linwood Avenue. The site is located immediately south of the Dauenhauer Ranch site (Project #6).

**Project Description.** The project would subdivide the site into 68 residential lots as follows:

- 12 lots at 5,000 to 6,000 square feet
- 21 lots at 3,500 square feet ("quad lots")
- 21 lots at 4,480 square feet ("cottage lots")
- 4 cottage duplex lots
- 10 attached 3-plex and 4-plex lots

The project site would thus contain 68 dwelling units at buildout, inclusive of seven existing single-family homes currently rented, and the construction of 47 single-family detached units and 14 attached units for a gross density of about five units per acre. The quad clusters would be a combination of one and two-story houses with no individual driveways onto the street. Cottage units would be a combination of one and two-story houses with a focus on the front entrances rather than the garages. Cottage unit garages would be one or two car garages located to the rear of the property with tandem parking provided in front.
The project proposal includes the Farmers Lane Extension along the east portion of the site separating very low density residential development to the east from low density residential development to the west (see Section 3.1.1, Planning and Relationship to Plans for a discussion of development densities). The very low density lots would range from 13,300 square feet to 36,000 square feet with an average size of 21,100 square feet. Access to the site would be via Linwood Avenue and Farmers Lane Extension (see Figure 2.2-19).

The project includes the construction of access streets and interior roadways in accordance with City standards. Street trees are proposed for installation along Farmers Lane Extension. Sewer, water and storm drain utilities would be constructed within the new streets after annexation of the property to the City of Santa Rosa. There is no proposed schedule for subdividing the parcel, which would occur after annexation and the installation of utilities.

2.4 REQUIRED APPROVALS

SOUTHEAST AREA PLAN

Approval and adoption of the Southeast 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 Map to reflect the land use mix of the Southeast Area Plan Map 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 Farmers Lane Extension, storm/sanitary sewers and water supply.

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 a Plan Line (alignment) for Farmers Lane Extension.6
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 Farmers Lane Extension/infrastructure projects. Grading permits would also be required from Sonoma County for any grading to occur within unincorporated land.

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 and Policies 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 Farmers Lane Extension/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.

2. Southeast Santa Rosa Area Plan, Phase 1 Screening Analysis, EIP Associates, May, 1993. This document is available for public inspection at the Santa Rosa Department of Community Development, 100 Santa Rosa Avenue, Santa Rosa, California 95402.

3. 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.


6. The adoption of a Plan Line is necessary to preserve the right-of-way, to indicate to surrounding property owners the road location, and to provide the basis for determining dedication, acquisition and improvement requirements.
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 Southeast Santa Rosa Area Plan, hereinafter referred to as 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 Plan Area and each individual site has been reviewed for conformance with the City of Santa Rosa General Plan 2010 Goals, Objectives, and Policies as well as the Land Use Map and text of the General Plan. The Area Plan must be in conformance with the General Plan 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 Map has been developed for the Plan Area (Figure 3.1.1-1).

This EIR evaluates the environmental impacts of the Southeast 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.
SOUTHEAST AREA PLAN

SETTING

The 640 acre Plan Area (sometimes referred to as study area) currently lies in the County of Sonoma, mostly within the Urban Boundary of the City of Santa Rosa. According to the Land Use Map of the Sonoma County General Plan, the Plan Area currently consists of land designated as Rural Residential and Resources and Rural Development. The study area is currently rural land developed with some residential housing. This area has historically been used for grazing livestock and other rural and agricultural land uses (Figure 3.1.1-2).

All proposed infrastructure projects are located in the project area within the Urban Boundary. 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 2.2-3. Since Farmers Lane is included within the Southeast Santa Rosa Area Plan and is now proposed on lands which would be annexed to the City of Santa Rosa, a policy analysis is provided for this alignment evaluating City policies. The Farmers Lane extension and other infrastructure is also evaluated to a lesser extent based on County Goals, Objectives and Policies as applicable.

Both urban and rural land uses are found in the Farmers Lane Extension corridor, as shown in Figure 3.1.1-2. Commercial, industrial and residential uses are concentrated west of Petaluma Hill Road; rural residential, agricultural and open space uses are found in the northern and eastern part of the corridor. The City of Santa Rosa currently designates the appurtenant land to the Farmers Lane extension as residential — very low, low, medium and medium high densities, and retail and business service uses. A community shopping center is a proposed land use along the roadway corridor fronting Kawana Springs and Petaluma Hill Roads.

The Southeast 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 is intended to offer:

- The opportunity to identify the most desirable balance and location of land uses, both public and private;
SOUTHEAST AREA PLAN

EXISTING LAND USES:
STUDY AREA AND ENVIRONS

- Residential - Low Density
- Residential - Medium Density
- General Commercial
- Heavy Commercial
- Public / Institutional
- Agriculture / Grazing
- Undeveloped

* Seasonal Residential: Horseman's Trailer Park

FIGURE 3.1.1-2

June, 1993

DEPARTMENT OF COMMUNITY DEVELOPMENT
The ability to devise a financing plan for funding public facilities;

- A context for identifying development issues earlier rather than later in the development process;

- A means to comprehensively plan for the location and type of community services and public improvements such as parks and new roads;

- The chance to develop a logical development phasing program to avoid a "piece-mealed" pattern of development that can result in fragmented or incomplete improvements;

- An opportunity to establish and reinforce neighborhood/community identity and produce more "livable" neighborhoods.

Portions of the study area is either already in the City limits or in the initial stages of annexation, but no major projects have been approved. See Figure 2.2-4 for the boundaries. These factors combine to produce both the need and the unusual opportunity to complete a comprehensive plan at this time.

**Santa Rosa General Plan**

The goal for the Sketch Plans (see Section 2, Project Description) was to respond to the concerns raised by City staff and the neighborhood committee while respecting some basic "givens" set forth in the General Plan. The preparation of a detailed plan for the Southeast 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 . . . ."

Some of the basic concepts of the General Plan which were considered included the number of dwelling units projected for the southeast 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 hillsides, creeks, and significant trees.

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 conformance with the General Plan and will take precedence over the General Plan for this 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 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 the urban sphere of influence.

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.
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 it be annexed. 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 may need to assist these property owners with appropriate information concerning the provision of public services. 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. This information can be included in the Area Plan for consideration by LAFCO rather than in the individual applications.

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 is to provide locations for well planned developments that conform with the General Plan, although the developments 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 building accessory thereto which meet all the requirements of the R-1 or R-6 (Single-family Residential) District. The 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:

- 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 Southeast Area Plan Map is more comprehensive than the Existing General Plan Map developed for the Southeast Area. The Area Plan includes more complex residential land use designations, parks and recreation uses along Colgan Creek corridor, and some alternate locations for retail and
business serving uses. 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, both Plans are consistent with the Goals and Policies identified in the Santa Rosa 2010 General Plan. The Southeast 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 to 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.

The Farmer's Lane extension indicated on the General Plan land use map is not the exact same alignment as indicated on the Area Plan. The General Plan 2010 does indicate, however, that the Farmers Lane extension should be constructed between Bennett Valley Road and Highway 101 to allow traffic to bypass the already congested interchange between Highway 12 and 101 and that it should serve adjoining development. The General Plan indicates that the roadway alignment will be established through this area planning effort. The alignment of Farmers Land Extension as shown connecting to Kawana Springs Road is not currently being considered.
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.

SOUTHEAST AREA PLAN

SETTING

The project area lies in Central Sonoma County, south of the City Santa Rosa, in a predominantly rural and agricultural area. Land uses in the area are characterized by agricultural and open space uses such as pasture and hayfields. The primary water body in the project area is Kawana Springs Creek located in the central portion of the study area. The Plan Area is located within the Planning Area and Urban Boundary of the City of Santa Rosa. Land bordering the northern and eastern boundaries is generally urban land uses. Lands to the south and southeast is mostly farmland with scattered residences and outbuildings. Figure 3.1.1-2 illustrates existing land uses.

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. This adjacent land is currently utilized in dairy operations.

Farmlands of Local Importance

Portions of the Southeast 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 Southeast Planning Area contains approximately 297.3 acres of Farmlands of Local Importance. The Farmlands of Local Importance occur on project sites 1-10 and 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 conver-
sion 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 areas 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 at 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 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 Southeast Area Plan 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 south and east of the Plan Area that are currently under Williamson Act contract. This includes the dairy property immediately south of Project #10.

**Land Use Designations**

The Santa Rosa General Plan 2010 currently designates the property in the study area as: residential (very low, low, medium, and medium high densities); retail and business service; office, public/institutional, parks and recreation, and open space. There are indicated sites for proposed community and neighborhood parks and a proposal for the Farmers Lane Extension. The existing General Plan is shown on Figure 3.1.1-3.
In developing the Southeast 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 which are described below and illustrated in Figure 3.1.2-1.

Residential Land Uses

**Very Low Density.** Density between .2 and 2 units per acre, consistent with the General Plan very low density land use classifications. The high end of this range — 2 units per acre — would produce an average single-family lot size of approximately 20,000 square feet. The lower end of the density range would result in single family lots averaging approximately 5 acres in size. It is assumed under the Area Plan that the average density in these areas will be one unit per acre.

**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.** Eight 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 "mid-point" of 8 units per acre (the "high" end of the Low Density category) and 13 units per acre (the "mid-point" of the Medium Density classification). 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, average density of 13 units to the acre is assumed.
Residential density classifications do not necessarily equate to a particular type of housing. For example, a site Very Low Density may be developed with a clustered multifamily project so long as the total number of units in the project is within the range allowed based upon the size of the property. Similarly, it may be possible to develop small lot single family homes at a Medium or Medium-low density.

**Commercial Land Uses**

**Community Center.** The Area Plan features 10+/- acre Community Center site east of Petaluma Hill Road, south of Kawana Springs Road. The Community Center is envisioned as a hub of activity for the entire southeast quadrant of the city by providing a mix of retail, service, entertainment, residential, and other types of uses. Uses would include a retail "anchor" such as a large grocery or drug store, personal services and offices, theaters or restaurants, and higher density housing. Civic uses, such as a community meeting room or library branch would also be appropriate in the community center. A total retail floor area between 100,000 and 130,000 square feet is expected.

**Town Center.** A 9.1+/- acre Town Center site is also proposed as part of the Area Plan. Located near the center of the study area and just north of the community park, the Town Center is primarily intended to serve local residents but would also provide goods or services. Expected uses include a 3,000 +/- square foot convenience grocery store, a small restaurant or delicatessen, and personal services. A total of 10,000 to 15,000 square feet of commercial floor area is proposed, along with approximately 100 multi-family residential units. In addition to a retail component, the Town Center may include a public use or plaza, perhaps related to the nearby Community Park.

**Parks and Open Space Uses**

**Neighborhood Parks.** The Area Plan includes two neighborhood parks, each approximately 2 acres in size. Improvements within these parks will generally be smaller scale, and geared toward passive rather than active forms of recreation. The neighborhood parks are intended to serve nearby residents, and have been located so that most residents will be within convenient walking distance of at least one park.

**Community Park.** The Community Park site shown in the Area Plan provides approximately 18 acres of level land area for larger scale facilities such as ballfields and courts, and includes a 4 +/- linear
park and pathway along Colgan Creek leading to Petaluma Hill Road. In addition, the Community Park has been located to provide linkage to a possible regional open space park in the Taylor Mountain area.

**Open Space.** Open Spaces areas are those lands which: a) include special environmental conditions, b) are subject to wildfire or geologic hazards, or c) support an important biotic habitat. Examples of Open Space in the City-Wide General Plan are wetland/vernal pool systems in the West Santa Rosa area, and hillsides outside the Urban Boundary. Open Space in the study area boundaries for the Southeast Area Plan include approximately 65 acres in the southeast corner of the study area near the foot of Taylor Mountain.

**Public/Institutional Uses**

The Area Plan includes four Public/Institutional sites, three of which recognize existing uses in the study area. The Study Area boundaries include County Fairgrounds properties, a Church, and a public services or facilities in this location. A fire station site has also been indicated east of the intersection of Petaluma Hill and Kawana Springs Roads.

**Surrounding Land Uses**

Land uses surrounding the Plan Area include agricultural, rural, and open space to the south. Retail and business serving uses, public and institutional and residential land uses are found north of the study area and south of Highway 12. West of the study area the land use is primarily commercial and retail uses along Santa Rosa Avenue with low, medium and high density residential uses toward the west. Some property along Yolanda Avenue is designated for General Industry. Southeast of the study area lies Taylor Mountain and other open space and agricultural uses.

Property to the west of the study area (including Santa Rosa Avenue, Yolanda Avenue, Kawana Springs Road, Petaluma Hill Road, Colgan Avenue, Flower Avenue and Santa Ana, Santa Barbara, San Clemente and San Domingo Roads) are included in the South Santa Rosa Specific Plan that was adopted in May, 1982. The South Santa Rosa Specific Plan designated the future urban expansion limits. The study area falls within the northern portion of this designated area.
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 and 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 prime agricultural land to non-agricultural uses; impairs the productivity of prime agricultural land; or contributes to significant cumulative losses of prime agricultural lands.

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 Southeast Santa Rosa Area Plan has been developed as a whole to provide neighborhood services and identity to the Southeast Area of the Santa Rosa Planning Area. The Area Plan includes a number of uses including: low, medium low, medium and medium high residential densities; retail and business serving uses; public and institutional uses; and parks, recreation and open space uses. The Southeast Area Plan includes a network of roadways and the future extension of Farmers
Land which would connect at Bennett Valley Road through the project area to U.S. 101. In addition, the Area Plan is designed to provide pedestrian-oriented services throughout neighborhoods in the Southeast Area. These services include parks and recreation opportunities, neighborhood commercial shopping and a potential library and community center.

The significance of land use impacts is based upon the compatibility of the proposed project with adjacent existing land uses. Long-term disturbances that diminish the quality of a particular land use or community characteristic would be considered potentially significant. Please 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 297.3 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. (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 will remove approximately 297.3 acres of Farmlands of Local Importance. This figure includes loss of agricultural land from the 11 proposed projects including the Farmers Lane extension. In addition, the figure also represents approximately 84.7 acres of land that currently does not have development applications pending. Since this is an irreversible commitment of important agricultural land to urban uses, the impact is considered significant. The loss of 297.3 acres of Locally Important Farmland constitutes 0.17 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 0.28 percent of the Locally Important Farmland in the County of Sonoma.

**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.

Land to the south of the Plan Area is currently under Agricultural Contract (Williamson Act contract) and once Project #10 is implemented on the adjacent property line Williamson Act lands could face pressures to develop. At present, no initiation of cancellation has been attempted by the property owner of the dairy to the south of the Plan Area. As the infrastructure nears the new Urban Boundary limit, the rural property could see an increase in the 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. 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 the land within Southeast 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 . . ."
The Farmers Lane extension crosses through the Southeast Plan Area. The proposed roadway would cross through land that is currently undeveloped or agricultural. The General Plan designates the land uses in the roadway corridor as: residential, very low density, low density, and medium density and retail and business services. The land use designations are very low and low density for the portion of the roadway corridor between Bennett Valley and Kawana Springs Road. Once the roadway reaches Kawana Springs Road, land uses become more intense. Very low densities are proposed on the eastern side of the proposed roadway, mainly due to geologic and topographic constraints.

The Farmers Lane extension is proposed to cross through Farmlands of Local Importance, potential wetlands, and an Alquist Priolo Special Studies Zone. This roadway is included in the Santa Rosa 2010 General Plan as a roadway option to be considered in this portion of the (future) city.

**Impact 3.1.2-2**

Construction of the Farmers Lane Extension (alone, without Area Plan buildout) would result in the loss of approximately 18 acres of Farmland of Local Importance as designated by the State Department of Conservation and Sonoma County. (S)

The use of Farmland of Local Importance for urban uses would be an irreversible and irretrievable loss of agricultural land.

**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)

**PROPOSED PROJECTS**

**IMPACTS AND MITIGATION MEASURES**

**Internal Compatibility of Individual Projects**

The individual projects can be grouped by those that are contiguous with similar land use designations; these are Projects #2, 3, 4, 5, and 7 located between Eaton and Linwood Avenues. These properties are all designated on the General Plan map as low density residential. These sites all have proposed residential subdivisions on them. Site 1 is located on Meda Avenue and proposes
multi-family units. All these sites are located west of the Farmers Lane Extension and are surrounded by low density residential land uses.

Sites 6, 8, 10, and 11 all are located in the area proposed for the Farmers Lane extension on the Area Plan. Both the Area Plan and the General Plan illustrate very low density development on the east side of Farmers Lane. Therefore, each of these sites contain a portion of land on their east sides that would accommodate very low density residential land uses. Portions to the west of Farmers Lane extension become more complex on the Area Plan. With the exception of project 11 each of these parcels are bounded on at least one side with open space land or agricultural land. Please refer to Figure 3.1.1-2 for specific land uses. See also Section 2, Project Description, for a description of each of the eleven proposed projects within the Southeast Area Plan.

All projects appear to be generally internally compatible, compatible with one another and with surrounding areas with the following exceptions.

Shared Roadways. Projects #3, 4, 5, and 7 all share roadways with adjacent sites. These site plans should be reviewed as a group to assure the funding and maintenance of the roadway and the timing of development. Project approvals should be contingent upon an agreement between the property owners or project sponsors to provide and maintain the street as required by the City of Santa Rosa Department of Public Works. These shared roadways are not expected to result in a physical land impact or result in a significant land use impact. Further information is provided in Section 3.1.4, Traffic and Circulation.

Physical Concerns. Several of the sites are located in areas of Geotechnical or Biological sensitivity (see Section 3.2.1, Geology, for more information). These projects are described in detail in Soils, Geology and Seismicity; Vegetation and Wildlife; Cultural Resources; Hydrology; Air Quality and Water Quality sections.

Impact 3.1.2-3

Construction of the eleven development projects could result in the loss of a total of 209.6 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County. (S)
Based on significance criteria of CEQA Appendix G, a project is normally significant if it will convert prime agricultural land to non-agricultural use or impair the productivity of prime agricultural land. The total area of Important Farmland as designated by the Department of Conservation and Sonoma County that would be lost per project site is provided below:

- Project #1 - 2.6 acres
- Project #2 - 3.2 acres
- Project #3 - 0.3 acre
- Project #4 - 3.8 acres
- Project #5 - 3.8 acres
- Project #6 - 32.9 acres
- Project #7 - 4.6 acres
- Project #8 - 129.5 acres
- Project #10 - 28.9 acres
- Project #11 - 0 acres

Although the total amount (209.6 acres) of Farmlands of Local Importance would be converted, this cumulative loss would be 0.12 percent of the County's Important Farmlands (Prime Farmlands; Farmlands of Statewide Significance; Unique Farmland; and Farmland of Local Significance). The cumulative loss constituted approximately 0.28 percent of the Locally Important Farmland in the County of Sonoma. Although this loss is considered significant, it should be noted that several of the individual parcels are quite small, particularly parcels 1-5 and 7 and 9 (all under 10 acres). Many of these sites already contain homes, and individually, are too small to provide important farmland resources. Project sites 6, 8 and 10 are the largest sites (from 49 to 140 acres) in the project area and could still provide viable farmland benefits if they are not developed. Project site 11 does not contain Farmland of Local Importance and, therefore, is not discussed further. If any of these projects develop near land that is currently used for grazing, land use impacts such as odors could affect the residents of the new development. (See discussion in Air Quality Section 3.2.4.)
Mitigation Measure 3.1.2-3

Other than no development, there are no feasible mitigation measures to protect the agricultural land from urban encroachment. (S)
3.1.3 POPULATION, EMPLOYMENT AND HOUSING

INTRODUCTION

This section examines the population, employment and housing changes resulting from both the Southeast Area Plan, and from the current eleven individual projects that are covered by the Plan. The Farmers Lane extension is not analyzed in this section as there is no basis for population, employment, or housing impacts resulting from this portion of the project. 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 which are either inconsistent with the Southeast 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 1990-2010, the period within which the majority of the project is anticipated to be built. The 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**

**SOUTHEAST AREA PLAN**

**Population**

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 from 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**

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, Live Stock 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, Food and Spirits, and other Durable and Nondurable goods. "Services" includes jobs in Hotels, Automotive Services,
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<td>88,538</td>
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<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>
<td>NA</td>
<td>NA</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 only the current City Limits. However, Santa Rosa sphere of influence and city limit coincide in 2010.

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 3.1.3-2

**SANTA ROSA — EMPLOYMENT BY SECTOR**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SANTA ROSA</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td></td>
<td>1,469</td>
<td>1,540</td>
<td>1,500</td>
<td>1,360</td>
<td>71</td>
<td>140</td>
<td>180</td>
<td>11.0%</td>
<td>4.8%</td>
<td>-2.6%</td>
<td>-9.3%</td>
<td>-11.7%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td></td>
<td>10,741</td>
<td>15,150</td>
<td>21,120</td>
<td>26,210</td>
<td>4,409</td>
<td>5,970</td>
<td>5,090</td>
<td>73.0%</td>
<td>41.0%</td>
<td>39.4%</td>
<td>24.1%</td>
<td>73.0%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td></td>
<td>11,382</td>
<td>16,780</td>
<td>18,880</td>
<td>22,170</td>
<td>5,398</td>
<td>2,100</td>
<td>3,290</td>
<td>18.5%</td>
<td>47.4%</td>
<td>12.5%</td>
<td>17.4%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Service Industries</td>
<td></td>
<td>13,756</td>
<td>24,180</td>
<td>31,800</td>
<td>40,120</td>
<td>10,424</td>
<td>7,620</td>
<td>8,320</td>
<td>88.0%</td>
<td>75.8%</td>
<td>31.5%</td>
<td>26.2%</td>
<td>65.9%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>18,578</td>
<td>25,570</td>
<td>29,470</td>
<td>35,430</td>
<td>6,992</td>
<td>3,900</td>
<td>5,960</td>
<td>37.6%</td>
<td>37.6%</td>
<td>15.3%</td>
<td>20.2%</td>
<td>38.6%</td>
</tr>
<tr>
<td><strong>Total Jobs</strong></td>
<td></td>
<td>55,926</td>
<td>83,220</td>
<td>102,770</td>
<td>125,290</td>
<td>27,294</td>
<td>19,550</td>
<td>22,520</td>
<td>48.8%</td>
<td>48.8%</td>
<td>23.5%</td>
<td>21.9%</td>
<td>50.6%</td>
</tr>
<tr>
<td><strong>Employed Residents</strong></td>
<td></td>
<td>44,565</td>
<td>62,920</td>
<td>80,800</td>
<td>92,700</td>
<td>18,355</td>
<td>17,880</td>
<td>11,900</td>
<td>41.2%</td>
<td>41.2%</td>
<td>28.4%</td>
<td>14.7%</td>
<td>47.3%</td>
</tr>
<tr>
<td><strong>SONOMA COUNTY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td></td>
<td>6,589</td>
<td>6,830</td>
<td>7,410</td>
<td>7,120</td>
<td>241</td>
<td>580</td>
<td>(290)</td>
<td>(290)</td>
<td>3.7%</td>
<td>8.5%</td>
<td>-3.9%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td></td>
<td>20,879</td>
<td>30,940</td>
<td>45,390</td>
<td>57,050</td>
<td>10,061</td>
<td>14,450</td>
<td>11,660</td>
<td>46.7%</td>
<td>48.2%</td>
<td>46.7%</td>
<td>25.7%</td>
<td>84.4%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td></td>
<td>21,691</td>
<td>32,000</td>
<td>37,590</td>
<td>46,590</td>
<td>10,309</td>
<td>5,590</td>
<td>9,000</td>
<td>47.5%</td>
<td>47.5%</td>
<td>17.5%</td>
<td>23.9%</td>
<td>45.6%</td>
</tr>
<tr>
<td>Service Industries</td>
<td></td>
<td>26,050</td>
<td>45,320</td>
<td>64,380</td>
<td>71,980</td>
<td>19,270</td>
<td>19,060</td>
<td>17,470</td>
<td>74.0%</td>
<td>74.0%</td>
<td>42.1%</td>
<td>27.1%</td>
<td>80.6%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>28,147</td>
<td>40,200</td>
<td>49,420</td>
<td>60,990</td>
<td>12,053</td>
<td>9,220</td>
<td>11,570</td>
<td>42.8%</td>
<td>42.8%</td>
<td>22.9%</td>
<td>23.4%</td>
<td>51.7%</td>
</tr>
<tr>
<td><strong>Total Jobs</strong></td>
<td></td>
<td>103,356</td>
<td>155,290</td>
<td>204,190</td>
<td>253,600</td>
<td>51,934</td>
<td>48,900</td>
<td>49,410</td>
<td>50.2%</td>
<td>50.2%</td>
<td>31.5%</td>
<td>24.2%</td>
<td>63.3%</td>
</tr>
<tr>
<td><strong>Employed Residents</strong></td>
<td></td>
<td>131,123</td>
<td>194,387</td>
<td>242,000</td>
<td>279,500</td>
<td>63,264</td>
<td>47,613</td>
<td>37,500</td>
<td>48.2%</td>
<td>48.2%</td>
<td>24.5%</td>
<td>15.5%</td>
<td>43.8%</td>
</tr>
</tbody>
</table>

/II/ Sectors are aggregated Standard Industrial Classification (SIC) codes as follows:

- Agriculture and Mining: includes all jobs in SIC codes 1-9, 10-14 (excluding 07-4-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>1980</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
<th>PERCENTAGE CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SANTA ROSA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td></td>
<td>2.6%</td>
<td>1.9%</td>
<td>1.5%</td>
<td>1.1%</td>
<td>-29.5%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td></td>
<td>19.2%</td>
<td>18.2%</td>
<td>20.6%</td>
<td>20.9%</td>
<td>-5.2%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td></td>
<td>20.4%</td>
<td>20.2%</td>
<td>18.4%</td>
<td>17.7%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>Service Industries</td>
<td></td>
<td>24.6%</td>
<td>29.1%</td>
<td>30.9%</td>
<td>32.0%</td>
<td>18.1%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>33.2%</td>
<td>30.7%</td>
<td>28.7%</td>
<td>28.3%</td>
<td>-7.5%</td>
</tr>
<tr>
<td>Total Jobs</td>
<td></td>
<td>55,926</td>
<td>83,220</td>
<td>102,770</td>
<td>125,290</td>
<td>48.8%</td>
</tr>
<tr>
<td>Employed Residents</td>
<td></td>
<td>44,565</td>
<td>62,920</td>
<td>80,800</td>
<td>92,700</td>
<td>41.2%</td>
</tr>
<tr>
<td><strong>SONOMA COUNTY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and Mining</td>
<td></td>
<td>6.4%</td>
<td>4.4%</td>
<td>3.6%</td>
<td>2.8%</td>
<td>-31.0%</td>
</tr>
<tr>
<td>Manufacturing and Wholesale</td>
<td></td>
<td>20.2%</td>
<td>19.9%</td>
<td>22.2%</td>
<td>22.5%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td></td>
<td>21.0%</td>
<td>20.6%</td>
<td>18.4%</td>
<td>18.4%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Service Industries</td>
<td></td>
<td>25.2%</td>
<td>29.2%</td>
<td>31.5%</td>
<td>32.3%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>27.2%</td>
<td>25.9%</td>
<td>24.2%</td>
<td>24.0%</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Total Jobs</td>
<td></td>
<td>103,356</td>
<td>155,290</td>
<td>204,190</td>
<td>253,600</td>
<td>50.2%</td>
</tr>
<tr>
<td>Employed Residents</td>
<td></td>
<td>131,123</td>
<td>194,387</td>
<td>242,000</td>
<td>279,500</td>
<td>48.2%</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).

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

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 outpaced the supply.

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
### TABLE 3.1.3-4
TOTAL, OCCUPIED AND VACANT HOUSING UNITS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</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>
<td></td>
<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>
<th>1970</th>
<th>19901</th>
<th>Percent Change 1970-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Household Income</td>
<td>$8,183</td>
<td>$38,600</td>
<td>371.7%</td>
</tr>
<tr>
<td>Median Home Price</td>
<td>$22,200</td>
<td>$189,500</td>
<td>753.6%</td>
</tr>
<tr>
<td>Required Household Income2</td>
<td>$7,515</td>
<td>$64,144</td>
<td>753.6%</td>
</tr>
<tr>
<td>Median Contract Rent</td>
<td>$117</td>
<td>$679</td>
<td>480.3%</td>
</tr>
</tbody>
</table>


1 Data for 1990 are mean values since median values were unavailable. Household income data are in 1988 constant dollars (will be adjusted for final draft). Home price is the median for Sonoma County as of April 1990. Rent data for 1990 is for two bedroom apartments.

2 Required household income is calculated assuming 10 percent down payment, 10 percent mortgage rate, and 28 percent qualifying ratio.
is that the Median Home Price, and the Required Household Income needed to purchase a home, have increased at approximately twice the rate of 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:\(^{11}\):

- **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 that 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 conservation 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 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.
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 Units</td>
<td>26%</td>
</tr>
<tr>
<td>Low Income Units Needed</td>
<td>1,427 Units</td>
<td>18%</td>
</tr>
<tr>
<td>Moderate Income Units Needed</td>
<td>1,745 Units</td>
<td>22%</td>
</tr>
<tr>
<td>Above Moderate Income Needed</td>
<td>2,696 Units</td>
<td>34%</td>
</tr>
<tr>
<td>Total Projected Housing Need</td>
<td>7,930 Units</td>
<td>100%</td>
</tr>
</tbody>
</table>


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.
- The developer has the option of providing each allocated unit either as a "for rent" or "rental unit" or as a "for sale unit."
3.1.3 Population, Employment and Housing

- 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.

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 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.

Population

Impact 3.1.3-1

Annexation and development of the Southeast Area Plan Preferred Alternative at mid-density could increase population in the City of Santa Rosa by 5,604 individuals at buildout.

Under the Southeast Area Plan, at mid-density buildout the area is projected to have a resident population of 5,604 persons (see Table 3.1.3-8). This population increase represents approximately
### TABLE 3.1.3-7
SOUTHEAST AREA PLAN -- PROJECT PROFILES AND PLAN SUMMARY

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>PROJECTS</th>
<th>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>Projects Total</th>
<th>Existing/1/ Land Use</th>
<th>Plan/2/ Surplus</th>
<th>Plan Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Units</td>
<td></td>
<td>0</td>
<td>14</td>
<td>5</td>
<td>14</td>
<td>28</td>
<td>190</td>
<td>53</td>
<td>493</td>
<td>0</td>
<td>81</td>
<td>54</td>
<td>932</td>
<td>92</td>
<td>159</td>
<td>1,183</td>
</tr>
<tr>
<td>Multi-Family Units</td>
<td></td>
<td>92</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>198</td>
<td>32</td>
<td>41</td>
<td>14</td>
<td>413</td>
<td>10</td>
<td>601</td>
<td>1,024</td>
</tr>
<tr>
<td>Commercial Space (Sq. Ft.)</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15,000</td>
<td>0</td>
<td>110,000</td>
<td>0</td>
<td>125,000</td>
<td>8,500</td>
<td>11,500</td>
<td>145,000</td>
</tr>
<tr>
<td>Developed Parkland (acres)</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>Open Space (acres)</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>Project Total</td>
<td></td>
<td>92</td>
<td>14</td>
<td>5</td>
<td>14</td>
<td>28</td>
<td>226</td>
<td>53</td>
<td>691</td>
<td>32</td>
<td>122</td>
<td>68</td>
<td>1,345</td>
<td>102</td>
<td>760</td>
<td>2,207</td>
</tr>
<tr>
<td>Percentage Share/3/</td>
<td></td>
<td>4.2%</td>
<td>0.6%</td>
<td>0.2%</td>
<td>0.6%</td>
<td>1.3%</td>
<td>10.2%</td>
<td>2.4%</td>
<td>31.3%</td>
<td>1.4%</td>
<td>5.5%</td>
<td>3.1%</td>
<td>60.9%</td>
<td>4.6%</td>
<td>34.4%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

/1/ Existing Land Use represents the total number of existing dwellings in the study area minus units to be demolished.

/2/ Plan Surplus represents the difference between the potential buildout of the Preferred Area Plan and the total of the Existing Land Use and the 11 proposed projects.

/3/ Percentage Share represents that column's percentage share of the Area Plan Total.

SOURCE: EIP Associates.

### TABLE 3.1.3-8
SOUTHEAST AREA PLAN -- PROJECT AND AREA PLAN POPULATION ESTIMATES

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>PROJECTS</th>
<th>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>Projects Total</th>
<th>Existing/1/ Land Use</th>
<th>Plan/2/ Surplus</th>
<th>Plan Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Units</td>
<td></td>
<td>0</td>
<td>38</td>
<td>14</td>
<td>38</td>
<td>76</td>
<td>517</td>
<td>144</td>
<td>1,341</td>
<td>0</td>
<td>220</td>
<td>147</td>
<td>2,535</td>
<td>250</td>
<td>432</td>
<td>3,218</td>
</tr>
<tr>
<td>Multi-Family Units</td>
<td></td>
<td>214</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>84</td>
<td>0</td>
<td>461</td>
<td>75</td>
<td>96</td>
<td>33</td>
<td>962</td>
<td>23</td>
<td>1,400</td>
<td>2,386</td>
</tr>
<tr>
<td>Project Total</td>
<td></td>
<td>214</td>
<td>38</td>
<td>14</td>
<td>38</td>
<td>76</td>
<td>601</td>
<td>144</td>
<td>1,802</td>
<td>75</td>
<td>316</td>
<td>180</td>
<td>3,497</td>
<td>274</td>
<td>1,833</td>
<td>5,604</td>
</tr>
<tr>
<td>Percentage Share/3/</td>
<td></td>
<td>3.8%</td>
<td>0.7%</td>
<td>0.2%</td>
<td>0.7%</td>
<td>1.4%</td>
<td>10.7%</td>
<td>2.6%</td>
<td>32.2%</td>
<td>1.3%</td>
<td>5.6%</td>
<td>3.2%</td>
<td>62.4%</td>
<td>4.9%</td>
<td>32.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Note: Population projections assume an average 2.33 persons per household for multi-family units, and 2.72 persons per household for single-family units.

/1/ Existing Population represents the total number of existing dwellings in the study area minus units to be demolished.

/2/ Plan Surplus represents the difference between the potential buildout of the Preferred Area Plan and the total of the Existing Land Use and the 11 proposed projects.

/3/ Percentage Share represents that column's percentage share of the Area Plan Total.

SOURCE: EIP Associates.
11% of the population growth projected for the City of Santa Rosa by ABAG between 1990 and 2010, or 13.5% of the population growth anticipated by the Santa Rosa General Plan over the same period. This population growth also represents approximately 4% of the total population growth projected for Sonoma County between the 1990 and 2010.

Mitigation Measure 3.1.3-1

No mitigation required for this socioeconomic impact.

Employment

Impact 3.1.3-3

Development of the Southeast Area Plan would generate 325 new jobs in the City of Santa Rosa.

Table 3.1.3-9 gives the total new employment that is projected to be generated in the commercial space that is anticipated to be developed under the Southeast Area Plan. This table indicates that, given the anticipated retail and government services uses, this commercial space is projected to generate 325 new jobs in the City of Santa Rosa. These 325 new jobs would be an increase of .43% over the existing jobs in the City, and represent 1.4% of the new job growth anticipated for the City by the Santa Rosa General Plan. These 325 new jobs represent .77% of the new jobs projected for the City of Santa Rosa by ABAG.

Mitigation Measure 3.1.3-3

No mitigation required for this socioeconomic impact.

Housing

Impact 3.1.3-5

Development of the Southeast Area Plan would increase the City of Santa Rosa housing stock by 2,207 units at mid-point density, and by 3,327 units at maximum density.

Table 3.1.3-10 gives the total number of housing units that would be developed in Southeast Santa Rosa at minimum, mid-point, and maximum density. Development in the Southeast area is expected to develop at mid-density or greater, as the Santa Rosa General Plan contains policies which both
TABLE 3.1.3-9
SOUTHEAST AREA PLAN — PROJECT AND AREA PLAN NEW EMPLOYMENT ESTIMATE

<table>
<thead>
<tr>
<th>LAND USE</th>
<th>PROJECTS</th>
<th>Projects Total</th>
<th>Existing/Land Use</th>
<th>Plan/Surplus</th>
<th>Plan Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Space (Sq. Ft.)</td>
<td></td>
<td>125,000</td>
<td>13</td>
<td>325</td>
<td></td>
</tr>
<tr>
<td>Project Total</td>
<td></td>
<td>15,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage Share/3/</td>
<td></td>
<td>11.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Employment estimates assume one employee per 400 s.f. of commercial development. This represents a weighted average of the Association of Bay Area Governments Square Feet Requirement Per Employee by Floor Area and Industry, for the two potential commercial uses, Retail Trade and Government Services.

/1/ Existing Land Use represents the total number of existing dwellings in the study area minus units to be demolished.

/2/ Plan Surplus represents the difference between the potential buildout of the Preferred Area Plan and the total of the Existing Land Use and the 11 proposed projects.

/3/ Percentage Share represents that column’s percentage share of the Area Plan Total.

SOURCE: EIP Associates.
TABLE 3.1.3-10
SOUTHEAST AREA PLAN — Total New Housing Potential at Buildout

<table>
<thead>
<tr>
<th>DENSITY CATEGORY</th>
<th>Density Range</th>
<th>Southeast Area Plan</th>
<th>Low Density Total Units</th>
<th>Mid Density Total Units</th>
<th>High Density Total Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low Density</td>
<td>.2-2</td>
<td>208</td>
<td>41.6</td>
<td>208</td>
<td>416</td>
</tr>
<tr>
<td>Low Density</td>
<td>2-8</td>
<td>195</td>
<td>390</td>
<td>975</td>
<td>1560</td>
</tr>
<tr>
<td>Medium-Low Density</td>
<td>8-13</td>
<td>79</td>
<td>632</td>
<td>790</td>
<td>1027</td>
</tr>
<tr>
<td>Medium Density</td>
<td>8-18</td>
<td>18</td>
<td>144</td>
<td>234</td>
<td>324</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>500</td>
<td>1208</td>
<td>2207</td>
<td>3327</td>
</tr>
</tbody>
</table>

Source: Southeast Area Plan

courage and require development at mid-range density or greater. The 2,207 units at mid-density buildout represent a 4.6% increase over the existing housing stock in the City. This increase would be 10.5% of the new housing growth projected by ABAG for the City of Santa Rosa over the 1990-2010 time period, or 9% of the new housing growth anticipated by the Santa Rosa General Plan. The maximum 3,327 units represents approximately a 7% increase over the existing housing stock in the City. These units would represent 16% of the new housing growth projected by ABAG for the City of Santa Rosa over the 1990-2010 time period, or approximately 13.5% of the new housing growth anticipated by the Santa Rosa General Plan.

Mitigation Measure 3.1.3-5

No mitigation required for this socioeconomic impact.

3. Ibid, Discussion, p. 146.
4. Ibid.
3.1.3 Population, Employment and Housing

5. Ibid.

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

7. CEQA Guidelines, June 1992, Section 15131.


10. 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.


3.1.4 TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

SETTING

Transportation Network Description and Classification

Street Classifications: Streets are classified as either freeways, expressways, arterials, or collectors (the General Plan Update provides definitions of these facilities). The classifications show existing streets only based upon the proposed classifications in the 1991 General Plan.

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 east as Farmers Lane, where the freeway ends and the state highway designation follows surface streets north and westward. Streets classified as arterials include Santa Rosa Avenue, Petaluma Hill Road, Kawana Springs Road, Yolanda Avenue, Todd Road, Brookwood Avenue, Farmers Lane, and portions of Bennett Valley Road (see Figure 3.1.4-1). Streets classified as collectors include: Colgan Avenue, Aston Avenue, South Hendley Street, and part of Bennett Valley Road.

Transit Services: The Southeast Area has a limited amount of transit service. Most of the available transit service is focused on Santa Rosa Avenue. Santa Rosa CityBus is the primary transit provider in the Southeast Area, as shown in Figure 3.1.4-2/3. 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 Southeast include:

Route 5 - Petaluma Hill Road. This route provides the most extensive service to the area. It operates on a series of one-way loops using Santa Rosa Avenue, Grand Avenue, Ware Street, Santa Ana Drive, Aston Avenue, Petaluma Hill Road, Yolanda Avenue, and Petaluma Hill Road. The route also circulates through the downtown, and connects to the 2nd Street Transit Mall. Service is provided every 30 minutes Monday through Friday, from 6:00 AM to 7:30 PM, and every 60 minutes
Santa Rosa/Todd Road is classified as an Arterial.

**Figure 3.1.4 - 1**
EXISTING AREA STREETS and TRAFFIC COUNT LOCATIONS

Note:
Todd Road is classified as an Arterial.
Figure 3.1.4-2/3
EXISTING TRANSIT SERVICES

City Bus Routes
5
7
Sonoma County Transit
44/48
46
Golden Gate Transit

SOUTHEAST AREA PLAN

Dowling Associates

Base Map: Santa Rosa Dept. of Community Development

1993
SCALE IN FEET

1000'
on Saturdays and Sundays. On Saturdays, service is operated 6:00 AM to 7:00 PM, and on Sundays from 10:00 AM to 4:00 PM.

Route 7 - Fairgrounds. This route provides a one-way clockwise loop that serves the periphery of the study area using Farmers Lane, Maple Avenue, and Brookwood Avenue, along with streets outside the study area. Buses run hourly from 6:45 AM to 7:45 PM Monday-Saturday; and 10:45 AM to 4:45 PM Sundays.

Intercity transit service is provided by Sonoma County Transit Routes 44, 46 and 48. The 44/48 routes connect downtown Santa Rosa (2nd Street Transit Mall) to Petaluma, via Rohnert Park and Cotati. Service is provided approximately hourly, though during peak travel times buses are scheduled more frequently (but at irregular intervals). Limited Saturday and Sunday service is also operated. The 46 provides express service between Santa Rosa and Rohnert Park via Petaluma Hill Road. It serves Sonoma State University and terminates at the Hewlett-Packard plant in east Rohnert Park. Eight trips are provided each weekday.

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. Routes operating on Santa Rosa Avenue include 71, 72, 73, 74, and 75. These routes provide peak-hours only service, southbound in the morning (4:25-9:30 AM) and northbound in the evening (3:30-7:40 PM), on Santa Rosa Avenue. There are a limited number of bus stops in order to provide for long-distance commuters: in the immediate area, stops are located at Barham, Colgan, Kawana Springs Road, and Hearn Avenue. Routes 71, 73, and 75 provide Sonoma-Marin service; Routes 72 and 74 provide service to the Civic Center and Financial District in San Francisco.

Bikeways: Existing bikeways in the area are limited. The only bikeways in the area have signage only:

- Santa Rosa Avenue: Hearn Avenue to Sonoma Avenue, Class III bike route (signed, no separate right of way).
- Petaluma Hill Road: Kawana Springs Road to Santa Rosa Avenue, Class III bike route.
- Brookwood Avenue: Aston Avenue to Sonoma Avenue, Class III bike route.
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 are shown in Figure 3.1.4-4. Counts have been rounded to the nearest hundred. The highest volumes in the area are clearly on US 101 and Highway 12. Volumes are also high on Santa Rosa Avenue, Petaluma Hill Road, and Bennett Valley Road (all above 10,000). Several other streets (Aston, S. Hendley, Brookwood, and Yolanda) 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 tax the capacity of the street, they do create a psychological 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 late April/early May 1993. The figure show directional counts, in contrast to the ADT counts, 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.

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 Santa Rosa Avenue (and to a lesser extent, Petaluma Hill Road) is probably attempting 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.

Intersection and Corridor Levels of Service: Intersection traffic counts were performed for this study in late April and early May 1993. The intersections were counted from 4 to 6 PM on weekdays (except Fridays). The PM peak traffic volumes, along with intersection lane configuration ("geometric") 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. 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:
Figure 3.1.4 - 4
EXISTING AVERAGE WEEKDAY TRAFFIC VOLUMES
(1991 - 1993)

Source: City of Santa Rosa; Caltrans (Freeways)

SOUTHEAST AREA PLAN

Dowling Associates

Base Map: Santa Rosa Dept. of Community Development
Figure 3.1.4 - 5
EXISTING PM PEAK HOUR
TRAFFIC VOLUMES-1993
Figure 3.1.4 - 6
EXISTING INTERSECTION
TRAFFIC CONTROL and
LEVEL OF SERVICE
1993 PM Peak Hour
3.1.4 Traffic and Circulation

- Signalized
- Two-way stop control
- Arterial systems

All computations are based upon the 1985 *Highway Capacity Manual* (HCM). 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 that level of service is measured differently; for two-way stop control, for example, the LOS is based upon the unused, or "reserve" capacity 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 do 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/poorer 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 Santa Rosa Avenue, and "A" or "C" along Bennett Valley Road. Typically, LOS "D" or better is considered acceptable in urban areas during peak hours. Since the 1991 General Plan was adopted, 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. This approach focuses on the overall flow and speed of traffic, which are partly the result of delays at individual intersections. It therefore represents an averaging of a series of intersections comprising a corridor.
### 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 3.1.4-2

**Level of Service Definitions - Unsignalized Intersection**

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Expected Delay</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>&lt; 0</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>&gt; 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 represents intermediate streets; and Type III urban streets. Type II (intermediate) streets typically have speed limits of 30-40 mph; some parking; 4-8 signals per mile; little pedestrian interference; and moderate roadside development.

- Type III (urban) streets typically have speed limits of 25-35 mph; parking is permitted; 8-12 signals per mile; some pedestrian interference; and densely built roadside development.
### TABLE 3.1.4-4

Existing (1993) Intersection Traffic Levels of Service in the Southeast 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>Hearn Avenue/Santa Rosa Avenue</td>
<td>C</td>
<td>21</td>
</tr>
<tr>
<td>Aston Avenue/Petaluma Hill Road</td>
<td>D</td>
<td>28</td>
</tr>
<tr>
<td>Petaluma Hill Road/Santa Rosa Ave.</td>
<td>B</td>
<td>14</td>
</tr>
<tr>
<td>Colgan Avenue/Santa Rosa Avenue</td>
<td>C</td>
<td>16</td>
</tr>
<tr>
<td>Yolanda Avenue/Petaluma Hill Road</td>
<td>F</td>
<td>*</td>
</tr>
<tr>
<td>Yolanda Avenue/Santa Rosa Avenue</td>
<td>C</td>
<td>22</td>
</tr>
<tr>
<td>Todd Road/Santa Rosa Avenue</td>
<td>C</td>
<td>17</td>
</tr>
<tr>
<td>Brookwood Avenue/Bennett Valley Road</td>
<td>B</td>
<td>11</td>
</tr>
<tr>
<td>Gordon Lane/Bennett Valley Road</td>
<td>E</td>
<td>*</td>
</tr>
<tr>
<td>Kawana Springs Rd./Petaluma Hill Road</td>
<td>E</td>
<td>*</td>
</tr>
<tr>
<td>Farmers Lane/Bennett Valley Road</td>
<td>B</td>
<td>13</td>
</tr>
<tr>
<td>Baker Avenue Overcrossing/Santa Rosa Avenue</td>
<td>B</td>
<td>14</td>
</tr>
<tr>
<td>Colgan Avenue/Petaluma Hill Road</td>
<td>F</td>
<td>*</td>
</tr>
<tr>
<td>Kawana Springs Road/Santa Rosa Avenue</td>
<td>A</td>
<td>3</td>
</tr>
</tbody>
</table>

* Unsignalized intersection. LOS is for worst movement, usually the left turn from the minor street into the major street. There is no method for calculating delay at these intersections.

### TABLE 3.1.4-5

Existing (1993) Corridor Arterial Level of Service (Type facility in parentheses)

<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Speed</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Rosa Avenue (Type II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12- Hearn Ave.</td>
<td>SB</td>
<td>21.0</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>23.4</td>
<td>C</td>
</tr>
<tr>
<td>Hearn Ave - Todd Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SB</td>
<td>28.5</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>29.9</td>
<td>B</td>
</tr>
<tr>
<td>Petaluma Hill Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Kawana Springs Rd. (Type II)</td>
<td>SB</td>
<td>18.3</td>
<td>C</td>
</tr>
<tr>
<td>(Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kawana Springs Rd. - Todd Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Type I)</td>
<td>SB</td>
<td>36.6</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>27.7</td>
<td>C</td>
</tr>
<tr>
<td>Yolanda Avenue (Type II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Petaluma Hill Rd.</td>
<td>EB</td>
<td>35.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>20.3</td>
<td>C</td>
</tr>
<tr>
<td>Bennett Valley Road (Type I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Farmers Lane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EB</td>
<td>35.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>20.3</td>
<td>C</td>
</tr>
</tbody>
</table>
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 public works department; this information included the proposed Santa Rosa Marketplace project. Santa Rosa land use outside the Southeast and Southwest areas was based on the City's General Plan Update. 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 transportation and circulation element (Chapter V, Santa Rosa 2010)

- 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. Seventeen of these zones cover the comprise the Southeast Plan area. The geographic areas covered by each of the TAZs in the Southeast Area are shown in Figure 3.1.4-7. Land use data was prepared by the City of Santa Rosa's Community Development staff 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 1991 General Plan (Santa Rosa 2010), and relevant projects include:
3.1.4 Traffic and Circulation

- Burt Street Extension from Santa Rosa Avenue to Petaluma Hill Road (2 lanes)
- Petaluma Hill Road from Santa Rosa Avenue to Burt Street (widen to 4 lanes)
- Todd Road from Santa Rosa Avenue to Petaluma Hill Road (construct 2 lane road)

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. These improvements were provided by the City's Public Works Department. The principal improvements in the Southeast Area are shown discussed below. The major city street projects are also shown in Figure 3.1.4-8.

The "project," as defined for CEQA purposes, also includes the Farmers Lane Extension from Bennett Valley Road to Petaluma Hill Road (a "No Farmers Lane Extension" alternative is considered in Section 6.2 of this EIR). Farmers Lane Extension has been evaluated in the model using a 35 MPH design speed, and treated it as a conventional arterial. This design speed would permit flexibility in the horizontal and vertical curvature of the roadway, thereby allowing it to avoid environmentally sensitive areas, and minimizing the amount of earthwork (cut and fill) required to construct this roadway.

The number of traffic lanes provided on the Farmers Lane Extension would be as follows: along the existing Yolanda Avenue (from Santa Rosa Avenue to Petaluma Hill Road) there would be two travel lanes (one in each direction), plus a center two-way left turn lane (TWLTL). This would require widening the existing roadway by one lane. The TWLTL is intended to accommodate turn movements to and from property access points in this area. From Petaluma Hill Road east and north, the extension would have three lanes: two eastbound and one westbound lane. At North Kawana Drive, an additional westbound lane would be provided, for a total of four lanes (two in each direction) all the way to Bennett Valley Road.

For purposes of this EIR, the number of lanes on Yolanda Avenue was assumed to be one travel lane in each direction, with a center two-way left turn lane (three lanes total). The ultimate cross-section is planned to be two eastbound travel lanes, one westbound lane, and a center turn lane. The reason for this difference is that, at present, the right-of-way does not exist for more than three lanes along Yolanda Avenue, and there is the possibility that it may not be possible to acquire this right-of-way before much (or all) of the Southeast Plan area is built out. For this reason, an interim solution

For Details of Cal Trans Improvements, See Figure 3.1.4-9.
that could fit within the available three lane right of way constraint was proposed. This does not affect the City's ultimate general plan policy to build the full width street for Yolanda Avenue.

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 freeway2, 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. It is possible that not all of the mitigation measures identified would be needed if the City’s freeway plan were selected. The Caltrans proposal (Figure 3.1.4-9) 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 existing northbound ramps are unchanged; southbound ramps are relocated to about 700' north of the existing bridge. The bridge is widened to 4 lanes (same as City’s plan).
- 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.
Highway 12

- Widen Baker Ave. Bridge to 4 Lanes
- Close Existing Baker Ave. Ramps
- Widen Corby Ave. to 4 Lanes
- New Southbound Ramps
- Close Existing Southbound Ramps
- New 4 Lane Heam Bridge
- Widen Ramp
- Bellevue Ave. New 4 Lane Bridge
- New Bellevue Ramps
- New Todd Bridge and Ramps

Not to Scale

SOUTHEAST AREA PLAN

DEPARTMENT OF
COMMUNITY DEVELOPMENT

Figure 3.1.4 - 9
CALTRANS
Plans for U.S. 101
Although not part of Caltrans plans, the modeling has assumed that the freeway portion of Highway 12 would terminate (as it does today) at Farmers Lane, although improvements would be made to the intersection. The most significant improvement would be the construction of a two-lane westbound bridge (grade separation) to take westbound Hoen Frontage Road traffic over Farmers Lane and onto the Highway 12 freeway. This project would remove the present "dog leg" movement, in which westbound traffic must make a right turn from Hoen Frontage Road onto Farmers Lane, and then a left turn onto the freeway.

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 tax 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, 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 City 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, *Santa Rosa 2010* (July 1991) establishes 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; situations where attainment of the standard would result in significant environmental degradation; situations where topography or environment impacts makes the improvement impossible; 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, that are part of the CMP-monitored system. Under the CMP law, some highway segments that were operating at LOS "F" during the PM peak in 1991 were exempted from future analysis (these are commonly known as "grandfathered" segments). In the vicinity of the Southeast Plan area, these segments include US 101 from Todd Road to Baker Avenue. 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".

Transportation Impacts

Impact 3.1.4-1

The project, along with cumulative traffic growth, would have a significant impact (below City standard) in the following areas (see Table 3.1.4-6):

Santa Rosa Avenue (both directions), Hearn Avenue to Todd Road (LOS "F")

Yolanda Avenue (westbound), Santa Rosa Avenue - Petaluma Hill Road (LOS "F")

This impact is significant without mitigation (S).

The discussion below provides intersection-specific details on the improvements determined to be needed as a result of 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 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". 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 for mitigations.

Mitigation Measure 3.1.4-1 (see Table 3.1.4-8 for mitigated LOS)

(a) Santa Rosa Avenue at Hearn Overcrossing of 101: Add a new NBL lane, to provide dual left turns at this intersection. This can be done only after the overcrossing (bridge) is widened to four lanes, since there need to be two lanes to "receive" the traffic. Add a second left turn lane on Hearn Avenue (eastbound), which may also require some additional width on the bridge. With the existing traffic control and future land uses, this intersection would operate at LOS "F" (64 seconds). With the proposed mitigations, it would operate at LOS "C" (24 seconds).

(b) Yolanda Avenue-Farmers Lane Extension at Petaluma Hill Road: Presently a STOP sign controlled intersection, it will need to be signalized in the future. The mitigated geometrics include two through lanes northbound, and two through lanes southbound, on Petaluma Hill Road; separate NBL and NBR lanes; on the eastbound approach, two EBT lanes and one EBR; a SBR lane; two WBT lanes, and a WBL lane. The northbound right and westbound left lanes are required because of the heavy turning
1. Santa Rosa Ave./Hearn Ave. QC

2. Petaluma Hill Rd./Aston Ave.

3. Santa Rosa Ave./Petaluma Hill Rd.

4. Santa Rosa Ave./Colgan Ave.

5. Petaluma Hill Rd./Yolanda Ave.

6. Santa Rosa Ave./Yolanda Ave. & Ramp

7. Santa Rosa Ave./Todd Rd.

8. Brookwood Ave./Bennett Valley Rd.

SOUTHEAST AREA PLAN

**Figure 3.1.4-10 A**

EXISTING & MITIGATED
INTERSECTION LANE
GEOMETRICS
9. Gordon Dr./Bennett Valley Rd.

Bennett Valley ➔

Gordon ➔

(one way) ➔

(two way) ➔

All Stop Control
Except Bennett Valley Eastbound.

10. Petaluma Hill Rd./Kawana Springs Rd.

Petaluma Hill Rd. ➔

Kawana Springs ➔

Fut. Signal

2-Way Stop
(Kawana Springs Stops.)

11. Farmers Lane/Bennett Valley Rd.

Farmers Lane ➔

Bennett Valley Rd. ➔

Farmers Lane (proposed) ➔

Signalized

12. Santa Rosa Ave./Baker Ave. Overcrossing

Santa Rosa Avenue ➔

Baker Ave. Overcrossing ➔

Signalized

13. Petaluma Hill Rd./Colgan Ave.

Petaluma Hill Rd. ➔

Colgan Ave. ➔

(Colgan Stops)

Fut. Signal

14. Santa Rosa Ave./Kawana Springs Rd.

Santa Rosa Avenue ➔

Kawana Springs ➔

Fut. Signal

Figure 3.1.4-10 B
EXISTING & MITIGATED INTERSECTION LANE GEOMETRICS

SOUTHEAST AREA PLAN

Existing Lane ➔

Proposed Lane ➔

DEPARTMENT OF COMMUNITY DEVELOPMENT

P93005 E-GE02.0WD 9-29-93
### TABLE 3.1.4-6

**Future Corridor Arterial Level of Service - With Plan**  
(Does not include intersection mitigations)

<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Speed</th>
<th>Future LOS</th>
<th>Existing LOS</th>
</tr>
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<tbody>
<tr>
<td>Santa Rosa Avenue</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12- Hearn Ave.</td>
<td>SB</td>
<td>15.7</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>16.6</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>Hearn Ave - Todd Road</td>
<td>SB</td>
<td>5.8</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>4.2</td>
<td>F</td>
<td>B</td>
</tr>
<tr>
<td>Petaluma Hill Road</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Kawana Springs Rd.</td>
<td>SB</td>
<td>18.4</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>18.4</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Kawana Springs Rd. - Todd Road</td>
<td>SB</td>
<td>36.6</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>29.2</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Bennett Valley Road</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Farmers Lane</td>
<td>EB</td>
<td>30.0</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>39.1</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Yolanda Avenue - Farmers Lane Extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Petaluma Hill Road</td>
<td>EB</td>
<td>27.1</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>4.4</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>Petaluma Hill Road - Bennett Valley Road**</td>
<td>EB</td>
<td>Not appl.</td>
<td>34.0</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>Not appl.</td>
<td>34.0</td>
<td>B</td>
</tr>
</tbody>
</table>

Note: For type of arterial, see Table 3.1.4-5.

*Service Level improves due to Farmers Lane Extension.*

**Speeds taken from TRANPLAN model output.*
movements coming from the area south of Santa Rosa along the Petaluma Hill Road corridor who wish to turn into or from Farmers Lane Extension. With the existing traffic control and future land uses, this intersection would operate at LOS "F" (delay not available). With the proposed mitigations, it would operate at LOS "E" (50 seconds).

(c) Yolanda Avenue at Santa Rosa Avenue: This is the location of the existing northbound 101 freeway ramp terminus. A WBL lane (from Yolanda into Santa Rosa Avenue) would be needed at this location along with a new eastbound through lane. Without mitigations, the intersection operates at LOS "F" (delay > 100 seconds). The proposed mitigation is a widening of the intersection approximately 500 feet north and south of the intersection to provide for three northbound through lanes (two are present today). With proposed mitigations, it would operate at LOS "E" (49 seconds). (Additional delay reduction is possible if Yolanda Avenue could be widened; however, this would require additional right-of-way and could be difficult and/or costly. An additional westbound thru lane on Yolanda could improve the intersection to "D"/38 seconds).

The signal should be coordinated with the intersection of Yolanda/Petaluma Hill Road, about 2,800' feet to the east. This would provide for less delay for traffic using the Farmers Lane Extension.

(d) Gordon Lane at Bennett Valley Road: This intersection would warrant signalization with future traffic volumes. The turning lane configuration would be unchanged. The signal should be coordinated (inter-connected) with the adjacent signals along Bennett Valley Road at Brookwood Avenue and Farmers Lane. With the existing traffic control and future land uses, this intersection would operate at LOS "E" (delay not available). With the proposed mitigations (including a traffic signal), it would operate at LOS "A/B" (5 seconds).

(e) Bennett Valley Road at Farmers Lane/Farmers Lane Extension: The Farmers Lane Extension would add a new northbound approach to the existing signalized intersection (i.e., a south leg). The mitigations suggested for turning lanes include: one NBL, two NBT, and one NBR lanes; two SBT on the existing southbound approach, along with a SBL; an additional WBT lane (two total, whereas one exists today). Comparison with a without mitigation situation is not meaningful because of the new approach. With mitigation, the intersection would operate at "D" (30 seconds).

(f) Colgan Avenue at Petaluma Hill Road: This intersection would need to be signalized. Assuming Petaluma Hill Road would be widened to four basic lanes, the only mitigation required to the intersection would be an eastbound left turn lane (the present configuration is a single lane shared by all movements-- left, through, and right). With the existing traffic control and future land uses, this intersection would operate at LOS "F" (delay not available). With the proposed mitigations, it would operate at LOS "D" (27 seconds).

(g) Todd Road at Santa Rosa Avenue: The intersection should be widened (similar to Yolanda/Santa Rosa Avenue) to provide for three southbound through lanes. Additional delay reduction is possible if dual southbound left turn lanes are used here...
(the new proposed Todd Connector from Santa Rosa Avenue to Petaluma Hill Road adds turning traffic to this intersection). The additional left turn lane would probably require purchase of additional right-of-way at this intersection. With the existing traffic control and future land uses, this intersection would operate at LOS "F" (>100 seconds). With the proposed mitigations, it would operate at LOS "E" (46 seconds).

(h) Kawana Springs Road at Petaluma Hill Road: This intersection warrants signalization with future traffic volumes. A northbound left turn lane on Petaluma Hill Road should be included in the proposed widening of Petaluma Hill Road (the City's General Plan calls for widening Petaluma Hill Road in this area to a four lane arterial). The left turn lane is also needed for safety reasons, to reduce the potential of rear-end accidents with the heavy northbound movement on Petaluma Hill Road. With the existing traffic control and future land uses, this intersection would operate at LOS "F" (delay not available). With the proposed mitigations, it would operate at LOS "B" (14 seconds).

(i) Aston-Allen Way Extension/Farmers Lane Extension: The future traffic volume at this intersection warrant a traffic signal under signal warrant #2.4

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 3.1.4-7. The table shows that traffic conditions along Highway 12 would generally be good, even during peak hours. Traffic LOS on 101 is "F" from the Todd Road to Hearn/Yolanda 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 Southeast Area's contribution to this traffic problem would be relatively modest. During the PM peak hour, only one to two percent of the freeway traffic would be caused by traffic going to or from the Southeast Area. As noted below, the Project proposes to reduce the amount of traffic generated
TABLE 3.1.4-7

Year 2010 Freeway Mainline Levels of Service with Plan, 4:30-5:30 PM
Volumes and capacities expressed in vehicles per hour (VPH)

<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>F</td>
<td>9</td>
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<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,400</td>
<td>F</td>
<td>18</td>
</tr>
<tr>
<td>101</td>
<td>Bellevue-Hearn (Yolanda)</td>
<td>NB</td>
<td>4,300</td>
<td>F</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,100</td>
<td>F</td>
<td>25</td>
</tr>
<tr>
<td>101</td>
<td>Hearn-Highway 12</td>
<td>NB</td>
<td>4,700</td>
<td>F</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB</td>
<td>4,400</td>
<td>F</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>US 101-Brookwood</td>
<td>EB</td>
<td>2,700</td>
<td>B/C</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB</td>
<td>2,400</td>
<td>B</td>
<td>52</td>
</tr>
<tr>
<td>12</td>
<td>Brookwood-Farmers Lane</td>
<td>EB</td>
<td>2,400</td>
<td>B</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB</td>
<td>1,700</td>
<td>B</td>
<td>55</td>
</tr>
</tbody>
</table>

Notes:

* Capacity is based upon the physical (LOS "E/F") capacity. Under this option, HOV lanes 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. The Table 3-1, *Highway Capacity Manual*, Transportation Research Board SR-209, 1985.
### TABLE 3.1.4-8

**Future Corridor Arterial Level of Service - With and Without Mitigations**

(Includes Farmers Lane Extension)

<table>
<thead>
<tr>
<th>Street and Segment(s)</th>
<th>Direction</th>
<th>Unmitigated Speed</th>
<th>Unmitigated LOS</th>
<th>Mitigated Speed</th>
<th>Mitigated LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Rosa Avenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway 12- Hearn Ave.</td>
<td>SB</td>
<td>15.7</td>
<td>D</td>
<td>19.9</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>15.4</td>
<td>D</td>
<td>22.0</td>
<td>C</td>
</tr>
<tr>
<td>Hearn Ave - Todd Road</td>
<td>SB</td>
<td>3.9</td>
<td>F</td>
<td>22.7</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>2.6</td>
<td>F</td>
<td>27.0</td>
<td>B</td>
</tr>
<tr>
<td>Petaluma Hill Road*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Kawana Springs Rd.*</td>
<td>SB</td>
<td>18.4</td>
<td>C</td>
<td>21.6</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>18.0</td>
<td>C</td>
<td>21.2</td>
<td>D</td>
</tr>
<tr>
<td>Kawana Springs Rd. - Todd Road</td>
<td>SB</td>
<td>36.6</td>
<td>A</td>
<td>28.7</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>NB</td>
<td>29.2</td>
<td>B</td>
<td>31.4</td>
<td>B</td>
</tr>
<tr>
<td>Yolanda Avenue - Farmers Lane Extension*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Petaluma Hill Rd.</td>
<td>EB</td>
<td>25.1</td>
<td>B</td>
<td>24.6</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>4.4</td>
<td>F</td>
<td>22.6</td>
<td>C</td>
</tr>
<tr>
<td>Petaluma Hill Road - Bennett Valley Road**</td>
<td>EB</td>
<td>Not applic.</td>
<td></td>
<td>34.0</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>Not applic.</td>
<td></td>
<td>34.0</td>
<td>B</td>
</tr>
<tr>
<td>Bennett Valley Road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Rosa Avenue - Farmers Lane*</td>
<td>EB</td>
<td>30.0</td>
<td>B</td>
<td>25.2</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>WB</td>
<td>39.1</td>
<td>A</td>
<td>37.3</td>
<td>A</td>
</tr>
</tbody>
</table>

* 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.

** Speeds taken from TRANPLAN model output.
3.1.4 Traffic and Circulation

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.

Mitigation Measure 3.1.4-2 (S)

The cumulative impact of traffic volumes would cause the 101 freeway to operate at below standard levels of service 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 no commitment by Caltrans to implement these mitigation measures, and because of their political 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. However, transit operators can probably provide for expanded service with existing revenue sources. This is not a significant impact (I).

Mitigation Measure 3.1.4-3

None required.

Impact 3.1.4-4

The project, including the Farmers Lane Extension, would tend to divert through traffic away from the internal street grid, to the Farmers Lane Extension at the periphery of the project (see Figure 3.1.4-U). Various intersections would benefit from the Extension, while others would have poorer levels of service. Intersections benefitting from Farmers Lane Extension include:

- Aston Avenue/Petaluma Hill Road
- Petaluma Hill Road/Santa Rosa Avenue
- Colgan Avenue/Santa Rosa Avenue
- Yolanda Avenue/Santa Rosa Avenue
Figure 3.1.4-11
Projected Average Weekday Traffic (ADT) with Extension and Area Build-out

SOUTHEAST AREA PLAN

DEPARTMENT OF
COMMUNITY DEVELOPMENT

Not to Scale
Figures rounded to Nearest 100.
• Brookwood Avenue/Bennett Valley Road
• Gordon Lane/Bennett Valley Road
• Kawana Springs Road/Petaluma Hill Road
• Kawana Springs Road/Santa Rosa Avenue

Intersections where the Farmers Lane Extension would worsen level of service include:
• Yolanda Avenue/Petaluma Hill Road
• Farmers Lane/Bennett Valley Road

Overall, Farmers Lane Extension would tend to reduce traffic volumes on internal streets in the Southeast Area; provide for safer and more residentially oriented street environments; and reduce speed on area streets. The use of traffic circles and other neighborhood traffic management devices would tend to reinforce this. This is not a significant impact (I).

Mitigation Measure 3.1.4-4

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.

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.

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 (Homburger, p.81). STOP signs should be used where warranted by high traffic volumes, or where sight lines are restricted enough to create a potential safety hazard.

Pedestrian Transportation

The major pedestrian and bicycle attractions in the Southeast would be:
• Kawana Elementary School
• Shopping centers (Town Center and proposed community center on Petaluma Hill Road between Yolanda and Kawana Springs Road)
• Community park off of Kawana Springs Road

In order to minimize potential traffic safety hazards, the Plan would provide a system of low volume streets and linear park pathways for pedestrian access to these activities.

Bikeways

The proposed bikeway plan (Figure 3.1.4-12) would include an off-street, physically separated Class I bikeway (path) along Colgan Creek, and Class II (bike lanes) bikeways along North Kawana Drive, Brookwood Avenue/Eaton Avenue, Farmers Lane Extension, Petaluma Hill road, and Santa Rosa Avenue. The City of Santa Rosa currently is developing a comprehensive bikeway plan for the City. The results of this effort are expected to culminate in a new bikeway plan for the City in the fall of 1993. The bikeways plan for the Southeast Area reflects the preliminary design for the citywide bikeways plan.

Public Transit

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 such 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, 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. CityBus projects an extension of one of the existing transit routes along Meda or Eaton (probably Route 7), and possibly a new express (limited stops) route using the Farmers Lane Extension. This latter route would provide service between the southwest the northeast portions of the City (see Figure 3.1.4-13), and would be commute-oriented with service during weekday peak hours only.
SOUTHEAST AREA PLAN
INFRASTRUCTURE

BICYCLE ROUTES & PEDESTRIAN PATHWAYS

- Bike Path - Class I
- Bike Lane - Class II
- Bike Route - Class III
- Multi-Use Pathways
- School
- Pedestrian Link or Crossing
- Regional Park (potential)
- Parks
- Undercrossing

Note: Paths and Routes outside study area reflect current General Plan Bicycle Facilities Diagram or the Draft Santa Rosa Bicycle Master Plan

Figure 3.1.4-12

June, 1993
**SOUTHEAST AREA PLAN**

**CONCEPTUAL TRANSIT PLAN**

- Present Transit Routes
- Possible Future Transit Routes
  - Local Transit
  - Commuter Transit
- Potential Transit Stop Locations

---

**Figure 3.1.4-13**

June, 1993

DEPARTMENT OF COMMUNITY DEVELOPMENT
# TABLE 3.2.5-1

## TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND IN THE INDUSTRY

<table>
<thead>
<tr>
<th>A-Weighted Sound Level in Decibels</th>
<th>Noise Environments</th>
<th>Subjective Impression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At a Given Distance From Noise Source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Defense Siren (100')</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Jet Takeoff (200')</td>
<td>130</td>
<td>Pain Threshold</td>
</tr>
<tr>
<td>Pile Driver (50')</td>
<td>120</td>
<td>Rock Music Concert</td>
</tr>
<tr>
<td>Ambulance Siren (100')</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Freight Cars (50')</td>
<td>100</td>
<td>Very Loud</td>
</tr>
<tr>
<td>Pneumatic Drill (50')</td>
<td>90</td>
<td>Boiler Room</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Printing Press Plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Kitchen with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Garbage Disposal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Running</td>
</tr>
<tr>
<td>Vacuum Cleaner (10')</td>
<td>80</td>
<td>Data Processing Center</td>
</tr>
<tr>
<td>Department Store</td>
<td>70</td>
<td>Quiet</td>
</tr>
<tr>
<td>Light Traffic (100')</td>
<td>60</td>
<td>Private Business Office</td>
</tr>
<tr>
<td>Large Transformer (200')</td>
<td>50</td>
<td>Quiet Bedroom</td>
</tr>
<tr>
<td>Soft Whisper (5')</td>
<td>40</td>
<td>Recording Studio</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>Threshold of Hearing</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</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</td>
<td></td>
</tr>
<tr>
<td>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</td>
<td>65 dBA (all long term)</td>
</tr>
<tr>
<td>discrimination or language development</td>
<td></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.
## LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

### LAND USE CATEGORY

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure Ldn or CNEL, dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential: Low-Density Single Family, Duplex, Mobile Homes</td>
<td>50 55 60 65 70 75 80 85</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>

### CATEGORY DESCRIPTIONS

- **NORMALLY ACCEPTABLE**: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- **CONDITIONALLY ACCEPTABLE**: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- **GENERALLY UNACCEPTABLE**: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- **LAND USE DISCOURAGED**: New construction or development should generally not be undertaken.

### SOURCE

State of California General Plan Guidelines, 1990
### Community Noise Exposure

<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</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>
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<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>

- **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.

**SOURCE**: GENERAL PLAN SANTA ROSA 2010, JULY 1991
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 with Santa Rosa and Sonoma County. Highway 101 has the highest daily traffic and it is between approximately 3300 to 8000 feet from the different projects. State Route 12 is between approximately 2200 to 8000 feet from the different projects. The Area Plan is located adjacent to low density rural residential areas which could generate various farm equipment and animal noises. The Sonoma fairgrounds is adjacent to the northern boundary of the Area Plan. The Area Plan is only minorly effected by train, and airplane noise.

There are industrial, residential, a school and a church land uses adjacent to building areas in the Area Plan. The industrial area is west of Petaluma Hill Road along Yolanda Avenue. The industrial, residential, a school and a church are sensitive to noise in varying degrees. The industrial areas are not very sensitive to noise. The church and school areas are sensitive to high noise levels primarily during the day. The residential areas would be sensitive to both indoor and outdoor noise levels 24 hours per day.
The Farmers Lane Extension would be through an existing rural residential and agriculture area and/or through the proposed low density residential area. Infrastructure improvements may be 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 extension and 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 six roadway links, incorporating data from Dowling Associates. 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 roadways and the distances from the centerline to the 60, 65, and 70 \( L_{dn} \) contours. The existing noise levels range from 67 \( L_{dn} \) at 100 feet from the centerline of Petaluma Hill Road, between Yolanda Avenue and Kawana Springs Road and 44 \( L_{dn} \) at 100 feet from the centerline of Kawana Springs Road, east of Petaluma Hill Road.

Measured Existing Noise Levels. Specifically for this project, noise was measured at one location on May 17, 1993 from 10:57 am to 11:48 am. Noise was monitored approximately 100 feet south of the end of Moraga Drive near Kawana School within the Project #8 perimeter. The major noise sources were birds, Petaluma Hill Road, children at the school, and the light traffic on Moraga Drive. The maximum one minute reading was 52 dBA. This noise level corresponds with the passage of two airplanes over the site. The minimum one minute reading was 42 dBA. The average noise level for the monitoring period was 45 dBA. The measurements were taken with a Quest Electronics M-28 Noise Logging Dosimeter. The meter was calibrated before and after with a Quest Model CA-12B Sound Calibrator.

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 noise level is greater than the levels stated in the Noise Ordinance during non-exempt hours. Local traffic impacts on existing and proposed residential, multi-residential, and school areas are considered significant if the impact is 60 \( L_{dn} \) or greater and if
### TABLE 3.2.5-3

MODELED EXISTING SCENARIO $L_{da}$ NOISE LEVELS AT RECEPTORS 100 FEET FROM THE CENTERLINE OF THE ROADWAY AND DISTANCE TO 60, 65, AND 70 $L_{da}$ NOISE CONTOUR IN FEET

<table>
<thead>
<tr>
<th>Locations</th>
<th>$L_{da}$ at 100 ft.</th>
<th>Distance to Noise Contour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70, 65, 60</td>
</tr>
<tr>
<td>1. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>65</td>
<td>43</td>
</tr>
<tr>
<td>3. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>4. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>5. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>6. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>61</td>
<td>20</td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.
there is a noise level increase of 1 dBA or more. Local traffic impacts on existing or proposed playgrounds and neighborhood parks are considered significant if the impact is 70 L\text{dn} or greater and if there is a noise level increase of 1 dBA or more. Local traffic impacts on existing and proposed office buildings and business commercial areas are considered significant if the impact is 65 L\text{dn} or greater and if there is a noise level increase of 1 decibels or more. Interior noise levels are considered significant if the noise level is 45 L\text{dn} or greater.

Methods

Two types of quantitative noise analyses are made in this DEIR. These involve, traffic noise, and construction noise.

Traffic Noise Analysis. Traffic noise modeling was completed using the model SOUND32. SOUND32 is the computer model STAMINA\textsuperscript{5}, a Federal Highway Administration Level 2 Noise Prediction Model, modified by Caltrans with California vehicle noise emission levels.\textsuperscript{6} Traffic analysis calculated the L\text{dn} at 100 feet and the distance to the 60, 65, and 70 L\text{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.\textsuperscript{7} 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 years 1991, 1998 and 2010.\textsuperscript{8} Analysis were performed for the Existing, Year 2010 Plus Project Without Farmers Lane, and Year 2010 Plus Project With Farmers Lane scenarios. The L\text{dn} at 100 feet from the centerline is used to determine the increase in project impacts. The distances to L\text{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.

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.\textsuperscript{9} 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.
### TABLE 3.2.5-4
CONSTRUCTION EQUIPMENT NOISE LEVELS\(^1\)
BEFORE AND AFTER MITIGATION

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Noise Level at 50 Feet</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without Noise Control</td>
<td>With Feasible Noise Control(^2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Earthmoving</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Loaders</td>
<td>79</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Backhoes</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Dozers</td>
<td>80</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Tractors</td>
<td>80</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td>88</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Graders</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Trucks</td>
<td>91</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Pavers</td>
<td>89</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td><strong>Materials Handling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Mixers</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Concrete Pumps</td>
<td>82</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Cranes</td>
<td>83</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Derricks</td>
<td>88</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td><strong>Stationary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps</td>
<td>76</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Generators</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Compressors</td>
<td>81</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile Drivers</td>
<td>101</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Jack Hammers</td>
<td>88</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Rock Drills</td>
<td>98</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>86</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saws</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Vibrators</td>
<td>76</td>
<td>75</td>
<td></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.
routines. The model was developed by William Bowlby 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.

**Impact 3.2.5-1**

Development of the Southeast Area Plan would cause temporary increases in construction noise levels on and around the Plan Area over the entire period of construction due to earthmoving, utility and general construction activities. This is considered to be short-term significant impact. (S)

Construction activities would temporarily increase noise levels in the Plan Area. These activities 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 the proposed project. 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
3.2.5 Noise

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 the noise impacts of nearby residents during noise-sensitive periods, construction within 1,600 feet of residents should be limited to between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends. For construction areas less than 1,600 feet from residents, work may only occur outside the designated hours by special permit from the City of Santa Rosa stating the compelling environmental reasons for construction during those 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 four 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

The development of the Southeast Area Plan and the Farmers Lane Extension/Infrastructure, in conjunction with cumulative traffic, would result in traffic noise impacts on the adjacent and nearby land uses. This is considered to be significant impact. (S)

The Southeast Area Plan residents at buildout would be exposed to noise levels greater than 60 L_{dn}. Noise levels from Petaluma Hill Road between Colgan and Yolanda and Brookwood Avenue between Bennett Valley and Allan Way would decrease below existing levels. While noise levels from Yolanda Avenue and Kawana Springs would increase. Traffic noise on Farmers Lane, Petaluma Hill Road, Kawana Springs Road, Meda Avenue, Eaton Avenue, Gordon Lane, and Allan Way in the year 2010 would produce noise levels above 60 L_{dn} adjacent to the roadways. Table 3.2.5-5 presents the L_{dn} at 100 feet from the centerline of 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours. Area Plan residents between 195
### TABLE 3.2.5-5

**MODELED SOUTHEAST AREA PLAN YEAR 2010 WITH FARMERS LANE 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>1. Petaluma Hill/ South of Yolanda</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>3. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>4. Farmers Lane/ Between Petaluma &amp; Meda</td>
<td>65</td>
<td>46</td>
</tr>
<tr>
<td>5. Farmers Lane/ Between Meda &amp; Kawana</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>6. Farmers Lane/ Between Kawana &amp; Allan</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>7. Farmers Lane/ Between Allan &amp; Bennett</td>
<td>66</td>
<td>56</td>
</tr>
<tr>
<td>8. Meda Avenue/ Between Kawana &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>9. Eaton Avenue/ Between Linwood &amp; Kawana</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>10. Linwood Avenue/ Between Eaton &amp; South Linwood</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>11. South Linwood Avenue/ Between Linwood &amp; Kawana</td>
<td>52</td>
<td>NA</td>
</tr>
<tr>
<td>12. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>59</td>
<td>NA</td>
</tr>
<tr>
<td>13. Kawana Springs/ Between Meda &amp; Farmers</td>
<td>57</td>
<td>NA</td>
</tr>
<tr>
<td>14. Allan Way/ West of Farmer Lane</td>
<td>60</td>
<td>NA</td>
</tr>
<tr>
<td>15. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>16. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>17. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>65</td>
<td>46</td>
</tr>
</tbody>
</table>

**NA** = Noise Contour either does not exist or is within the roadway.

to 260 feet from the centerline of Farmers Lane would be exposed to noise levels equal or greater than 60 $L_{dn}$. Area Plan residents between 155 to 450 feet from Petaluma Hill Road's centerline would be exposed to significant noise levels. Area Plan residents within 81 feet of Kawana Springs Road's centerline would be exposed to noise levels equal or greater than 60 $L_{dn}$. Area Plan residents 100 feet from the centerline of Allan Way would be exposed to significant noise levels. Table 3.2.5-6 presents the $L_{dn}$ noise levels for 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. Implementation of following mitigation measure would reduce this impact 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 Southeast Area Plan along Farmers Lane Extension, along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and the northwest corner of Project #8, along Kawana Springs Road between Petaluma Hill Road and Farmers Lane Extension, along Meda Avenue, along Eaton Avenue, along Gordon Lane, and along Allan Way between Farmers Lane and Gordon Lane to reduce year 2010 exterior noise levels at existing and proposed residents to 60 $L_{dn}$ or below.

(1)

One roadway link on Farmers Lane between Allan Way and Bennett Valley Road was analyzed using the model SOUND32. This roadway was analyzed twice. Once with a six foot sound wall and the other time with a six foot berm. With a six foot sound wall, the distance to 60 $L_{dn}$ is reduced from 260 feet to 190 feet with the maximum noise level of 65 $L_{dn}$ behind the sound wall. With a six foot berm, the distance to the 60 $L_{dn}$ is reduced to 100 feet with the maximum noise level of 62 $L_{dn}$ behind the berm.

**Impact 3.2.5-3**

The development of the Farmers Lane Extension/Infrastructure would cause temporary increases in noise levels on and around the planned improvements 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 the planned improvements similar in magnitude to the impacts discussed in 3.2.5-1. These activities 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,
<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. Petaluma Hill/ South of Yolanda</td>
<td>70</td>
<td>99</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>58</td>
</tr>
<tr>
<td>3. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>4. Farmers Lane/ Between Petaluma &amp; Meda</td>
<td>56</td>
<td>NA</td>
</tr>
<tr>
<td>5. Farmers Lane/ Between Kawana &amp; Allan</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>6. Meda Avenue/ Between Kawana &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>7. Eaton Avenue/ Between Linwood &amp; West Linwood</td>
<td>62</td>
<td>28</td>
</tr>
<tr>
<td>8. Linwood Avenue/ Between Eaton &amp; South Linwood</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>9. South Linwood Avenue/ Between Linwood &amp; Kawana</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>10. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>61</td>
<td>20</td>
</tr>
<tr>
<td>11. Kawana Springs/ Between Meda &amp; Farmers</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>12. Allan Way/ West of Farmer Lane</td>
<td>54</td>
<td>NA</td>
</tr>
<tr>
<td>13. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>14. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>15. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>63</td>
<td>32</td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.
excavation, grading, roadway and utility construction operations associated with the proposed project. In addition, there is the possibility that blasting would be required. Noise levels associated with blasting can be in excess of 100 dBA within 50 feet of detonation. Since noise from blasting typically decreases by 6 dBA with each doubling of distance, exterior receptors within 1,600 feet could experience noise levels greater than 70 dBA. Implementation of following mitigation measure would reduce this impact to an *insignificant* level.

Mitigation Measure 3.2.5-3

(a) If blasting occurs, it should be performed in accordance with the City of Santa Rosa’s imposed conditions. Property owners within a minimum of one-quarter-mile radius should be notified in advance as to the time and location of the blasting, and all reasonable recognized precautions to minimize impacts to surrounding properties should be used in accordance with City standards.

(b) Implement Mitigation Measures 3.2.5-1(a), 3.2.5-1(b), and 3.2.5-1(c).

Impact 3.2.5-4

The development of the Southeast Area Plan would expose future residents to noise from adjacent and nearby land uses. This is considered to be *potentially significant impact.* (PS)

The Southeast Area Plan is adjacent to potentially and occasionally noisy land uses. The Southeast Area Plan is adjacent to an industrial zoned area near the Area’s southwest corner. The industrial zoned property immediately adjacent to the Southeast Area Plan is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Southeast Area Plan residents.

The Sonoma County Fairgrounds is near the northern portion of the west boundary of the Southeast Area Plan. Several events occur annually which would produce noise such as the roar of a crowd or gas-powered vehicles. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an *insignificant* level.

Mitigation Measure 3.2.5-4

The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southeast Area Plan along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and Kawana Springs Road.
and near the Sonoma County Fairgrounds to reduce existing and future potential noise from industrial land uses and the fairgrounds for existing and proposed Area Plan residents to 60 \( L_{dn} \) or below. (1)

PROPOSED PROJECTS

SETTING
The Southeast Area Plan’s noise setting section discusses acoustic fundamentals, applicable state and city regulatory background information, modeled existing noise levels, and measured existing noise levels. Specific noise sources and receivers near each of the eleven Proposed Projects is presented below.

Existing Noise Sources and Receivers

Project #1: 1815 Meda. The proposed site and the adjacent residential uses are exposed to minor roadway noise from Moraga Drive and Meda Avenue. Kawana School is located at the southern portion of Moraga Drive.

Project #2: 2307 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are close. The fairgrounds are approximately 450 feet from Project #2.

Project #3: 2555 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #3.

Project #4: 2549 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1200 feet from Project #4.

Project #5: 2595 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1500 feet from Project #5.
Project #6: Dauenhauer. The proposed site is adjacent to urban and rural residential areas. Small portions of the site are exposed to roadway noise from Linwood Avenue, Brookwood Avenue, and Allan Way. The fairgrounds are approximately 450 feet from the northwest corner of Project #6.

Project #7: 2375 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 600 feet from Project #7.

Project #8: Willow Creek. The proposed site is adjacent to an elementary school, church, urban residential areas, and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The southern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 1800 feet from the fairgrounds.

Project #9: Ellsworth. The proposed site is adjacent to rural residential areas. The site is exposed to roadway noise from Brookwood Avenue and Allan Way. The fairgrounds are approximately 450 feet from the west edge of Project #9.

Project #10: Kawana Meadows. The proposed site is adjacent to industrial and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The northern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 3100 feet from the fairgrounds.

Project #11: McIntosh. The proposed site and the adjacent rural residential uses are also exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #11.

IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology associated with the Proposed Projects is the same as what was presented for the Southeast Area Plan.
Impact 3.2.5-5

The eleven 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 eleven 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. 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 eleven Proposed Projects would result traffic volumes which would result in increased noise levels on adjacent and nearby land uses. This is considered to be a significant impact. (S)

Traffic impacts associated with the eleven 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 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours. Table 3.2.5-6 presents the L_{dn} at 100 feet from the centerline of 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours.

Listed below are the eleven Proposed Projects and descriptions of where the 60 L_{dn} noise contour would be located. Mitigation Measure 3.2.5-6 described below would apply to that portion of each project where residences would be located within the 60 L_{dn} noise level.
Project #1: 1815 Meda. Future traffic noise levels greater than 60 L_{dn} on this proposed site would only occur along the eastern edge of the project (35 feet from the centerline of Meda Drive).

Project #2: 2307 Linwood. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #3: 2555 Linwood. Future traffic noise levels would not exceed 60 L_{dn} on this proposed site.

Project #4: 2549 Linwood. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #5: 2595 Linwood. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #6: Dauenhauer. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along Farmers Lane, Allan Way, and Gordon Lane for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along Allan Way, and Gordon Lane for the without Farmers Lane extension scenario. Future traffic noise levels would not exceed 70 L_{dn} for the proposed park on this proposed site.

Project #7: 2375 Linwood. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #8: Willow Creek. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along Farmers Lane, Kawana Springs Road, Petaluma Hill Road and Meda Avenue for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 L_{dn} on this proposed site would occur along South Linwood Avenue, Eaton Avenue, Meda Avenue, Kawana Springs Road and Petaluma Hill Road for the without Farmers Lane extension scenario.
Project #9: Ellsworth. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Allan Way and Gordon Lane.

Project #10: Kawana Meadows. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Petaluma Hill Road, Kawana Springs Road, and Farmers Lane.

Project #11: McIntosh. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur only along Farmers Lane (220 feet from the centerline of Farmers Lane) for the with Farmers Lane extension scenario.

Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-6

Implement Mitigation Measure 3.2.5-2. (I)

Impact 3.2.5-7

The development of the eleven Proposed Projects would expose future residents to noise from adjacent and nearby land uses. This is considered to be potentially significant impact. (PS)

The eleven Proposed Projects are adjacent to potentially and occasionally noisy land uses. Project #10 is adjacent to an industrial zoned area. The industrial zoned property immediately adjacent to the Project #10 is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Project #10 residents.

The Sonoma County Fairgrounds is near Project # 6 and 9. Several events occur annually which would produce noise such as the roar of a crowd. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-7

The project developers for Project #10 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Project #10 along the east side of
3.2.5 Noise

Petaluma Hill Road to reduce existing and future potential noise from industrial land uses for proposed Project #10 residents to 60 L_{dn} or below. The project developers for Projects #6 and 9 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Projects #6 and 9 to reduce existing and future potential noise from the fairgrounds for proposed Project #6 and 9 residents to 60 L_{dn} or below. (1)

REFERENCES


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. 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.

DRAFT SOUTHEAST 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
4. Growth Inducements

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 325 jobs and create 2,207 dwelling units which would support 5,604 new residents. 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. Secondary population growth resulting from the Area Plan at buildout would amount to less than one percent (0.64 percent), of the projected population growth in Santa Rosa by the year 2010. Although this number is small in proportion to total growth, the following discussion would apply.

This 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 Southeast 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 potential secondary impact of the secondary households formed by direct project employees then becomes a primary impact of the future individual residential projects that add new housing. If no new housing is forthcoming in an area, then a successful residential location of one of these secondary households would mean the occupancy of an existing housing unit instead. In this case, the secondary household would not create an impact to a jurisdiction's public service, fiscal or physical environment, but simply be a substitute occupant of existing housing stock. If a project employee household could not locate within a particular location for any reason such as growth control, then a substitute location would be found and the potential secondary impact would occur there.

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 #8, Willow Creek with 15,000 square feet of commercial space, and Project #10, Kawana Meadows with 110,000 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 Farmers Lane Extension/infrastructure projects within the Southeast 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.

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.

Parcels that have been without public water and sewer service in the Southeast Plan area would have direct access to the Farmers Lane Extension project as a new arterial road and 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 Southeast Area), and more employment opportunities, as well as increased business sales (refer to the discussion above under the title Draft Southeast Santa Rosa Area Plan). Proposed projects that would have direct access to the Farmers Lane Extension project include Projects #6 (Dauenhauer Ranch), #8 (Willow Creek), #9 (Ellsworth Site), #10 (Kawana Meadows), and #11 (McIntosh...
4. Growth Inducements

Subdivision), which would comprise the bulk of currently proposed development within the Southeast Area Plan.

With the Farmers Lane Extension project in place, there could be pressure for increased general industry development along Yolanda Avenue west of Petaluma Hill Road because of increased access. The light industrial and warehousing distribution along Yolanda Avenue and Santa Rosa Boulevard could also experience the entry of commercial and retail businesses taking advantage of new residents within the Plan area and commuters because of the improved access Farmers Lane Extension would provide. This could fragment the large parcels along Yolanda Avenue reducing the potential for future manufacturing and warehouse uses for which such parcels were reserved. Improved access could also encourage higher intensity industrial development to replace or intensify the trucking operations that dominate Yolanda Avenue.

Finally, the Farmers Lane Extension project could indirectly create interest in expanding the Urban Boundary to the south. As development within the Urban Boundary nears buildout and parcels outside the Boundary become contiguous with the City limits, the marketability of these parcels would be expected to increase (marketability is also increased with the provision of sewer, water and drainage improvements). Some of these parcels are now used for farming and grazing. If proposed, expansion of the Urban Boundary would require separate environmental review.

PROPOSED PROJECTS

Growth resulting from the eleven proposed projects within the Southeast 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 Southeast 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 eleven 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 (refer to the discussion above under the title Farmers Lane Extension/Infrastructure Projects for additional data). As noted previously (see Section 2, Project Description), the proposed projects would be one component of the Southeast Area Plan, which in turn would require an amendment to the City's General Plan Map, and the Area Plan is required under the provisions of the General Plan. The Southeast 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, but the contribution to growth would not 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, Farmers Lane Extension/Infrastructure projects, and the eleven 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

SOUTHEAST AREA PLAN

- Implementation of the Area Plan would result in the loss of 297.3 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

- Construction of the Farmers Lane Extension would result in the loss of approximately 18 acres of Farmland of Local Importance as designated by the State Department of Conservation and Sonoma County.
5. Unavoidable Significant Adverse Impacts

PROPOSED PROJECTS

- Construction of the eleven proposed projects could result in the loss of 209.6 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

- 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.

However, the Southeast Area's contribution to this traffic problem would be relatively modest. During the PM peak hour, only one to two percent of the freeway traffic would be caused by traffic going to or from the Southeast Area. 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., Rohnert Park), and unincorporated areas of Sonoma County.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

- Buildout of the Southeast Area Plan would convert what is currently a semi-rural to rural setting to an urban setting. Plan development would constitute a significant change in visual conditions within southeast Santa Rosa. Thus the impact would be significant and unavoidable.

- Grading to construct the Farmers Lane Extension in hillside terrain between Kawana Springs and Petaluma Hill Road would potentially require the removal of existing oak trees. In the absence of grading plans for the project, the exact number of oak trees required for removal cannot be determined. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

PROPOSED PROJECTS

Project #6, Dauenhauer Ranch @ 96 acres:

- Project #6 construction would require the removal of about six oak trees. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.
5. Unavoidable Significant Adverse Impacts

Project #8, Willow Creek @ 140 acres:

- Project #8 construction would require the removal of an undetermined number of oak trees, but probably less than 15 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

Project #10, Kawana Meadows @ 49 acres:

- Project #10 construction would require the removal of an undetermined number of oak trees, but probably about 25 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

SOILS, GEOLOGY AND SEISMICITY

FARMERS LANE EXTENSION

- Alignment of the Farmers Lane Extension project would be subject to the damaging effects of surface rupture where the Extension crosses at least one trace of the Rodgers Creek Fault.

VEGETATION AND WILDLIFE

AREA PLAN, FARMERS LANE EXTENSION/INFRASTRUCTURE, PROPOSED PROJECTS

- Construction of the proposed Farmers Lane Extension would subject existing wildlife to road kill, disrupt daily wildlife movement and migration corridors, and fragment wildlife populations. Growth induced by proximity of the extended roadway could further reduce wildlife habitat and increase pressures on wildlife.

AIR QUALITY

SOUTHEAST AREA PLAN

- The Southeast Area Plan including Farmers Lane Extension would result in construction-related emissions which could cause temporary local exceedances in federal and/or State air quality standards.

- Southeast Area Plan development would result in vehicular, home heating, home cooling, and wood burning emission exceeding one percent of County totals.
PROPOSED PROJECTS

- The development of the eleven proposed projects would result in construction-related emissions which could cause temporary local exceedances in federal and/or start air quality standards.

- The proposed eleven projects would result in vehicular, home heating, home cooling and wood burning emissions exceeding one percent of County totals.

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 Southeast Area Plan, Farmers Lane Extension project, and the eleven individual project proposals within the Southeast 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 most of 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 Southeast quadrant of Santa Rosa bounded on the west 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. 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 Southeast 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 Farmers Lane Extension project, and individual housing 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 to rural setting to urban development, removal of an undetermined number of specimen oak trees, subjecting the proposed Farmers Lane Extension project to the damaging effects of surface rupture where the Extension would cross the Rodgers Creek Fault, Farmers Lane Extension obstructing a wildlife corridor within a tributary to Matanzas Creek, and loss of an undetermined amount of riparian woodland.

With respect to traffic issues, the land use changes proposed in the Southeast 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.

The table shows that approximately 2,700 fewer weekday vehicle trip ends would be generated by the Area Plan, which equates to about 200-250 fewer PM peak hour trips. The reduction in trips indicates that the Area Plan would result in better, or no worse, level of service impacts to intersections and to arterial corridors in the surrounding area, than the No Project Alternative.
**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>Average Weekday Trip Ends</th>
<th>Total Daily Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-349 DU</td>
<td>10/DU</td>
<td>-3,490</td>
</tr>
<tr>
<td>Multifamily (Attached)</td>
<td>+400</td>
<td>7/DU</td>
<td>+2,800</td>
</tr>
<tr>
<td>Commercial(^1)</td>
<td>-39,900 sq. ft.</td>
<td>50/1,000 s.f.</td>
<td>-1,995</td>
</tr>
<tr>
<td>TOTAL</td>
<td>---</td>
<td>---</td>
<td>-2,685</td>
</tr>
</tbody>
</table>

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

DU = dwelling unit.

s.f. = gross usable square feet.
While some changes in analysis techniques have occurred since the EIR on the General Plan was prepared in 1991, the following represent the important differences with the Area Plan:

**US 101**

The Area Plan involves 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 generally provides greater capacity along US 101, and therefore, in some areas (primarily south of Hearn Avenue to Todd Road) 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 under the Area Plan than the No Project Alternative.

**Highway 12**

LOS is generally comparable between the two alternatives; both generally provide for LOS "D" or better.

**Santa Rosa Avenue**

The mitigated Area Plan option provides for somewhat better levels of service than the No Project alternative (generally "C" rather than "D"). The unmitigated project, however, would result in LOS "F".

**Petaluma Hill Road**

Under the Area Plan alternative, LOS is comparable to the No Project alternative. With mitigations, the Area Plan should make LOS somewhat better than the No Project alternative.

**Brookwood Avenue**

LOS would be comparable or slightly better with the Area Plan than with the No Project alternative.

The adopted 1991 General Plan Update includes the Farmers Lane Extension along substantially the same alignment as proposed in the Area Plan (although in the General Plan it is shown as connecting into Kawana Springs Road at Petaluma Hill Road.)
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 Southeast 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 trip generation by up to 6-8% per dwelling unit. \(^2\)

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 Southeast 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 13 Area Plan elements are addressed as a comprehensive whole within the EIR. These elements include the eleven project proposals, the Farmers Lane Extension 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 Southeast 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 Southeast Area Plan, future EIRs dealing only with local environmental impacts, would likely not take into account potential beneficial long-term, region-wide effects. 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 Southeast Area Plan, environmental review that complements regional growth management strategies would not be undertaken, detracting from a certain efficiency that is possible within the planning and development process.

6.2 ALTERNATIVE CIRCULATION PLANS

NO FARMERS LANE EXTENSION

One of the alternatives tested as part of this EIR included effectively deleting Farmers Lane Extension from the circulation system. The land use alternatives are identical, but the two plans differ in terms of the circulation system. In the Project alternative, Farmers Lane Extension is built with two, three, or four travel lanes (depending on the location) arterial street, with an average running speed of 35 MPH. In the other alternative (see Figure 6-1) the Farmers Lane Extension has been deleted, and a Yolanda Extension curves northward to join Meda Avenue. In addition, the speed on Eaton Avenue was increased from 25 MPH (Project) to 30 MPH to provide a collector-type street that would divert traffic from paralleling local neighborhood streets. Rather than being a local street, Eaton would be treated as a collector street. In the northeastern portion of the Plan Area, no connection is provided to Farmers Lane, but a local street is built along a portion of the Farmers Lane Extension alignment to provide connections to other streets. The traffic speeds coded in the TRANPLAN model (in MPH) are shown in Figure 6-1 and Figure 6-2 to facilitate comparison by the reader. These two figures show the networks with and without Farmers Lane Extension.

Impacts of the No Farmers Lane Extension

Arterial Level of Service. A comparison of the mitigated LOS with and without Farmers Lane is shown in Table 6-2. Both of the alternatives shown in this table include the same mitigations, in order to provide a fair comparison of the impacts of Farmers Lane Extension.

Overall, LOS generally is worse without the Farmers Lane Extension. In a few cases, the Extension adds traffic on certain routes, reducing the speed and sometimes the letter LOS on that arterial segment. In most cases, the reduced travel speeds are not significant.
SOUTHEAST AREA PLAN

Dowling Associates

- **TWO LANE**
- **THREE LANE**
  - One Travel Lane Each Direction
  - Center Turn Lane
- **THREE LANE**
  - Two Eastbound
  - One Westbound
- **FOUR LANE**
  - Two Travel Lanes Each Direction
  - 35 SPEED MPH

Figure 6.2 - 1
PLAN AREA ROADWAYS
With Farmers Lane Extension

Santa Rosa/Todd Base
Dept. of Comm.mi

© 1993

1000' 0 1000'

SCALE IN FEET

Santa Rosa 1993

Santa Rosa: Dept. of Community Development

Road Map: Santa Rosa Dept. of Community Development
TABLE 6-2
FUTURE CORRIDOR ARTERIAL LEVEL OF SERVICE - WITH PLAN LAND USES
(INCLUDES INTERSECTION MITIGATIONS)
TRAVEL SPEEDS, IN MPH

| Street & Segments(s) | Direction | | Mitigated | | | | Unmitigated | | | |
|----------------------|-----------|---|----------------|---|---|---|---|---|---|---|---|---|
|                     | Project | No Farmer's Lane | Hybrid Alt. | | | | Project | No Farmer's Lane | Hybrid | |
| Santa Rosa Avenue (Type II) | | | | | | | | | | |
| Highway 12 - Hearn Ave | SB | 19.9 | C | 21.0 | C | 21.0 | C | 15.7 | D | 12.4 | E | 13.1 | E |
|                       | NB | 22.0 | C | 18.5 | C | 22.0 | C | 15.4 | D | 18.1 | C | 21.1 | C |
| Hearn Ave - Todd Road | SB | 22.7 | C | 21.9 | C | 25.4 | B | 3.9 | F | 10.6 | E | 10.6 | E |
|                       | NB | 27.0 | B | 23.7 | C | 29.3 | B | 2.6 | F | 6.5 | F | 8.4 | F |
| Petaluma Hill Road | | | | | | | | | | |
| Santa Rosa Ave - Kawana Springs Rd (Type I) | SB | 21.6 | C | 20.6 | C | 18.5 | C | 18.4 | C | 17.9 | D | 18.2 | C |
|                       | NB | 21.2 | D | 17.2 | D | 16.5 | E | 18.0 | C | 16.8 | D | 16.8 | D |
| Kawana Springs Rd - Todd Rd (Type I) | SB | 28.7 | B | 34.0 | B | 34.9 | B | 36.6 | A | 36.6 | A | 36.6 | A |
|                       | NB | 31.4 | B | 33.1 | B | 31.4 | B | 29.2 | B | 26.5 | C | 25.7 | C |
| Yolanda Avenue (Type II) | | | | | | | | | | |
| Santa Rosa Ave - Petaluma Hill Rd | EB | 24.6 | B | 18.9 | C | 26.7 | B | 25.1 | B | 35.0 | A | 27.1 | B |
|                       | WB | 22.6 | C | 10.1 | E | 22.6 | C | * | F | 1.8 | F | 8.5 | F |
| Bennett Valley Road (Type I) | | | | | | | | | | |
| Santa Rosa Ave - Farmers Lane | EB | 25.2 | C | 21.7 | D | 26.8 | C | 31.7 | B | 21.1 | D | 29.9 | B |
|                       | WB | 37.3 | A | 37.3 | A | 37.3 | A | 39.1 | A | 39.1 | A | 39.1 | A |

Note: Mitigations are as detailed in Section 3.1.4.3. Speeds for Farmers Lane Extension are shown in Table 3.1.4-8.
* Oversaturated condition; speed calculation not possible. For explanation of facility types, see Table 3.1.4-3. Figure 6-3
Average Weekday Traffic Volumes. The average weekday traffic (ADT) with and without Farmers Lane Extension is shown in Figure 6-3. The impact of the No Farmers Lane Extension alternative increases traffic volumes on certain links, and decreases them on others. With the Farmers Lane Extension, volumes are generally lower on the 101 freeway and Highway 12, while Santa Rosa Avenue and Petaluma Hill Road become more attractive routes to traffic because of the Extension. Volumes on Eaton are substantially higher without the Extension than with, as traffic finds this an attractive route for longer and through trips. The 'No Extension' alternative also causes volumes to increase significantly on Brookwood and Gordon Lane. Overall, this represents a significant change in traffic volumes due to the 'No Extension' alternative.

Freeway Volumes

The changes in freeway volumes due to the No Farmers Lane Extension Alternative are shown in Table 6-3. The positive signs on most of the values indicate that the No Farmers Lane Extension alternative would increase volumes on the freeway, because less capacity would be provided on city streets. The additional volume change under the No Extension Alternative generally represents a significant increase in the traffic volumes.

Vehicle Miles of Travel

Vehicle miles of travel (VMT) is an important measure of street and highway system performance. It is a reflection of congestion in a street system, since as congestion increases, drivers often seek longer distance routes that are faster. VMT is also correlated with energy consumption and air pollution, since the more miles vehicle travels, the more energy the consume and pollution they emit. Finally, VMT is an important factor in estimating user costs, since the more miles of travel, the greater the cost to the motoring public. The increase in VMT under the No Extension Alternative represents a significant impact.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 9,100 miles per day. While these seems like a small amount, cumulated over a year, it represents on the order of 2.7 million miles. Using a fairly conservative cost of vehicle operations of 15 cents/mile, and
Figure 6.2 - 3
Projected Average Weekday Traffic (ADT) with Area Build-out

SOUTHEAST AREA PLAN

Not to Scale
Figures rounded to Nearest 100.
### TABLE 6-3

**YEAR 2010 FREEWAY MAINLINE CHANGES IN VOLUME DUE TO NO FARMERS LANE EXTENSION ALTERNATIVE 4:30-5:30 PM IN VEHICLES PER HOUR (VPH)**

(Negative numbers indicate decreases due to No Extension; positive numbers indicate increases with No Extension)

<table>
<thead>
<tr>
<th>Route</th>
<th>Segment</th>
<th>Change in Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Todd-Bellevue</td>
<td>NB +800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB 0</td>
</tr>
<tr>
<td>101</td>
<td>Bellevue-Hearn (Yolanda)</td>
<td>NB +200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB -200</td>
</tr>
<tr>
<td>101</td>
<td>Hearn-Highway 12</td>
<td>NB +300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB +100</td>
</tr>
<tr>
<td>12</td>
<td>US 101-Brookwood</td>
<td>EB +400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB +100</td>
</tr>
<tr>
<td>12</td>
<td>Brookwood-Farmers Lane</td>
<td>EB +600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB +300</td>
</tr>
</tbody>
</table>
## 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></td>
</tr>
<tr>
<td>Pile Driver (50')</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance Siren (100')</td>
<td>110</td>
<td>Rock Music Concert</td>
<td>Pain Threshold</td>
</tr>
<tr>
<td>Freight Cars (50')</td>
<td>100</td>
<td>Boiler Room</td>
<td>Very Loud</td>
</tr>
<tr>
<td>Pneumatic Drill (50')</td>
<td>90</td>
<td>Printing Press Plant</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Kitchen with Garbage Disposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Running</td>
<td></td>
</tr>
<tr>
<td>Vacuum Cleaner (10')</td>
<td>80</td>
<td>Data Processing Center</td>
<td></td>
</tr>
<tr>
<td>Department Store</td>
<td>70</td>
<td>Private Business Office</td>
<td></td>
</tr>
<tr>
<td>Light Traffic (100')</td>
<td>60</td>
<td>Quiet Bedroom</td>
<td>Quiet</td>
</tr>
<tr>
<td>Large Transformer (200')</td>
<td>50</td>
<td>Recording Studio</td>
<td>Threshold of Hearing</td>
</tr>
<tr>
<td>Soft Whisper (5')</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 3.2.5-2

**SUMMARY OF THE PUBLIC HEALTH EFFECTS OF COMMUNITY NOISE AND THE NOISE LEVELS AT WHICH THEY CAN OCCUR**

<table>
<thead>
<tr>
<th>EFFECT</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Noise as a Stressor</td>
<td></td>
</tr>
<tr>
<td>Increase incidence of high blood pressure that leads to increased risk of cardiovascular disease</td>
<td>85 dBA (long term)</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></td>
</tr>
<tr>
<td>Steady noise</td>
<td>90 dBA</td>
</tr>
<tr>
<td>Irregular noise</td>
<td>All levels</td>
</tr>
<tr>
<td>III. Prenatal and Childhood Effects</td>
<td></td>
</tr>
<tr>
<td>Increased incidence of low birth weight</td>
<td>70 dBA</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></td>
</tr>
<tr>
<td>Decreased helpfulness and social interaction</td>
<td>80 dBA</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></td>
</tr>
<tr>
<td>Less than 5 feet between conversants</td>
<td>65 dBA</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>Residential: Low-Density Single Family, Duplex, Mobile Homes</td>
<td>50 55 60 65 70 75 80 85</td>
</tr>
<tr>
<td>Residential: Multiple Family</td>
<td>70 75 80 85</td>
</tr>
<tr>
<td>Transient Lodging: Motels, Hotels</td>
<td>60 65 70 75 80 85</td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td>65 70 75 80 85</td>
</tr>
<tr>
<td>Auditoriums, Concert Halls, Amphitheaters</td>
<td>60 65 70 75 80 85</td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td>70 75 80 85</td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td>50 55 60 65 70 75 80</td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td>50 55 60 65 70 75 80</td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td>50 55 60 65 70 75 80 85</td>
</tr>
<tr>
<td>Industrial, Manufacturing, Utilities, Agriculture</td>
<td>50 55 60 65 70 75 80 85</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 requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- **GENERALLY UNACCEPTABLE**: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- **LAND USE DISCOURAGED**: New construction or development should generally not be undertaken.

*Source: State of California General Plan Guidelines, 1990*
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ldn or CNEL, dB</td>
</tr>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Residential</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>

- **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.

**SOURCE**: GENERAL PLAN SANTA ROSA 2010, JULY 1991
3.2.5 Noise

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 with Santa Rosa and Sonoma County. Highway 101 has the highest daily traffic and it is between approximately 3300 to 8000 feet from the different projects. State Route 12 is between approximately 2200 to 8000 feet from the different projects. The Area Plan is located adjacent to low density rural residential areas which could generate various farm equipment and animal noises. The Sonoma fairgrounds is adjacent to the northern boundary of the Area Plan. The Area Plan is only minorly effected by train, and airplane noise.

There are industrial, residential, a school and a church land uses adjacent to building areas in the Area Plan. The industrial area is west of Petaluma Hill Road along Yolanda Avenue. The industrial, residential, a school and a church are sensitive to noise in varying degrees. The industrial areas are not very sensitive to noise. The church and school areas are sensitive to high noise levels primarily during the day. The residential areas would be sensitive to both indoor and outdoor noise levels 24 hours per day.
The Farmers Lane Extension would be through an existing rural residential and agriculture area and/or through the proposed low density residential area. Infrastructure improvements may be 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 extension and 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 six roadway links, incorporating data from Dowling Associates. 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 roadways and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. The existing noise levels range from 67 $L_{dn}$ at 100 feet from the centerline of Petaluma Hill Road, between Yolanda Avenue and Kawana Springs Road and 44 $L_{dn}$ at 100 feet from the centerline of Kawana Springs Road, east of Petaluma Hill Road.

Measured Existing Noise Levels. Specifically for this project, noise was measured at one location on May 17, 1993 from 10:57 am to 11:48 am. Noise was monitored approximately 100 feet south of the end of Moraga Drive near Kawana School within the Project #8 perimeter. The major noise sources were birds, Petaluma Hill Road, children at the school, and the light traffic on Moraga Drive. The maximum one minute reading was 52 dBA. This noise level corresponds with the passage of two airplanes over the site. The minimum one minute reading was 42 dBA. The average noise level for the monitoring period was 45 dBA. The measurements were taken with a Quest Electronics M-28 Noise Logging Dosimeter. The meter was calibrated before and after with a Quest Model CA-12B Sound Calibrator.

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 noise level is greater than the levels stated in the Noise Ordinance during non-exempt hours. Local traffic impacts on existing and proposed residential, multi-residential, and school areas are considered significant if the impact is 60 $L_{dn}$ or greater and if
### 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. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>65</td>
<td>43</td>
</tr>
<tr>
<td>3. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>4. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>5. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>6. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>61</td>
<td>20</td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.

3.2.5 Noise

there is a noise level increase of 1 dBA or more. Local traffic impacts on existing or proposed playgrounds and neighborhood parks are considered significant if the impact is 70 $L_{dn}$ or greater and if there is a noise level increase of 1 dBA or more. Local traffic impacts on existing and proposed office buildings and business commercial areas are considered significant if the impact is 65 $L_{dn}$ or greater and if there is a noise level increase of 1 decibels or more. Interior noise levels are considered significant if the noise level is 45 $L_{dn}$ or greater.

Methods

Two types of quantitative noise analyses are made in this DEIR. These involve, traffic noise, and construction noise.

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 years 1991, 1998 and 2010. Analysis were performed for the Existing, Year 2010 Plus Project Without Farmers Lane, and Year 2010 Plus Project With Farmers Lane 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.

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
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Noise Level at 50 Feet Without Noise Control</th>
<th>Noise Level at 50 Feet With Feasible Noise Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Earthmoving</strong></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>
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<td>Scrapers</td>
<td>88</td>
<td>80</td>
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<tr>
<td>Graders</td>
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<td>75</td>
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<tr>
<td>Trucks</td>
<td>91</td>
<td>75</td>
</tr>
<tr>
<td>Pavers</td>
<td>89</td>
<td>80</td>
</tr>
<tr>
<td><strong>Materials Handling</strong></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><strong>Stationary</strong></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><strong>Impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile 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>
<tr>
<td>Pneumatic Tools</td>
<td>86</td>
<td>80</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<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.
routines. The model was developed by William Bowlby 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.

**Impact 3.2.5-1**

Development of the Southeast Area Plan would cause temporary increases in construction noise levels on and around the Plan Area over the entire period of construction due to earthmoving, utility and general construction activities. This is considered to be short-term significant impact. (S)

Construction activities would temporarily increase noise levels in the Plan Area. These activities 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 the proposed project. 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 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
3.2.5 Noise

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 the noise impacts of nearby residents during noise-sensitive periods, construction within 1,600 feet of residents should be limited to between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends. For construction areas less than 1,600 feet from residents, work may only occur outside the designated hours by special permit from the City of Santa Rosa stating the compelling environmental reasons for construction during those 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 four 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**

The development of the Southeast Area Plan and the Farmers Lane Extension/Infrastructure, in conjunction with cumulative traffic, would result in traffic noise impacts on the adjacent and nearby land uses. This is considered to be *significant impact* (S).

The Southeast Area Plan residents at buildout would be exposed to noise levels greater than 60 $L_{dn}$. Noise levels from Petaluma Hill Road between Colgan and Yolanda and Brookwood Avenue between Bennett Valley and Allan Way would decrease below existing levels. While noise levels from Yolanda Avenue and Kawana Springs would increase. Traffic noise on Farmers Lane, Petaluma Hill Road, Kawana Springs Road, Meda Avenue, Eaton Avenue, Gordon Lane, and Allan Way in the year 2010 would produce noise levels above 60 $L_{dn}$ adjacent to the roadways. Table 3.2.5-5 presents the $L_{dn}$ at 100 feet from the centerline of 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. Area Plan residents between 195
TABLE 3.2.5-5

MODELED SOUTHEAST AREA PLAN YEAR 2010 WITH FARMERS LANE $L_{dn}$ 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>1. Petaluma Hill/ South of Yolanda</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>3. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>4. Farmers Lane/ Between Petaluma &amp; Meda</td>
<td>65</td>
<td>46</td>
</tr>
<tr>
<td>5. Farmers Lane/ Between Meda &amp; Kawana</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>6. Farmers Lane/ Between Kawana &amp; Allan</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>7. Farmers Lane/ Between Allan &amp; Bennett</td>
<td>66</td>
<td>56</td>
</tr>
<tr>
<td>8. Meda Avenue/ Between Kawana &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>9. Eaton Avenue/ Between Linwood &amp; Kawana</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>10. Linwood Avenue/ Between Eaton &amp; South Linwood</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>11. South Linwood Avenue/ Between Linwood &amp; Kawana</td>
<td>52</td>
<td>NA</td>
</tr>
<tr>
<td>12. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>59</td>
<td>NA</td>
</tr>
<tr>
<td>13. Kawana Springs/ Between Meda &amp; Farmers</td>
<td>57</td>
<td>NA</td>
</tr>
<tr>
<td>14. Allan Way/ West of Farmer Lane</td>
<td>60</td>
<td>NA</td>
</tr>
<tr>
<td>15. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>16. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>17. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>65</td>
<td>46</td>
</tr>
</tbody>
</table>

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NA = Noise Contour either does not exist or is within the roadway.
to 260 feet from the centerline of Farmers Lane would be exposed to noise levels equal or greater than 60 \( L_{dn} \). Area Plan residents between 155 to 450 feet from Petaluma Hill Road's centerline would be exposed to significant noise levels. Area Plan residents within 81 feet of Kawana Springs Road's centerline would be exposed to noise levels equal or greater than 60 \( L_{dn} \). Area Plan residents 100 feet from the centerline of Allan Way would be exposed to significant noise levels. Table 3.2.5-6 presents the \( L_{dn} \) noise levels for 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 \( L_{dn} \) contours. Implementation of following mitigation measure would reduce this impact 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 Southeast Area Plan along Farmers Lane Extension, along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and the northwest corner of Project #8, along Kawana Springs Road between Petaluma Hill Road and Farmers Lane Extension, along Meda Avenue, along Eaton Avenue, along Gordon Lane, and along Allan Way between Farmers Lane and Gordon Lane to reduce year 2010 exterior noise levels at existing and proposed residents to 60 \( L_{dn} \) or below.

One roadway link on Farmers Lane between Allan Way and Bennett Valley Road was analyzed using the model SOUND32. This roadway was analyzed twice. Once with a six foot sound wall and the other time with a six foot berm. With a six foot sound wall, the distance to 60 \( L_{dn} \) is reduced from 260 feet to 190 feet with the maximum noise level of 65 \( L_{dn} \) behind the sound wall. With a six foot berm, the distance to the 60 \( L_{dn} \) is reduced to 100 feet with the maximum noise level of 62 \( L_{dn} \) behind the berm.

Impact 3.2.5-3

The development of the Farmers Lane Extension/Infrastructure would cause temporary increases in noise levels on and around the planned improvements over the entire period of construction due to earthmoving, utility and general construction activities. This is considered to be a short-term significant impact.

Construction activities would temporarily increase noise levels around the planned improvements similar in magnitude to the impacts discussed in 3.2.5-1. These activities 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.
### TABLE 3.2.5-6

MODELED SOUTHEAST AREA PLAN YEAR 2010 WITHOUT FARMERS LANE $L_{dn}$ 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>
</tr>
</thead>
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<tr>
<td></td>
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<td>70</td>
</tr>
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<td>99</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>58</td>
</tr>
<tr>
<td>3. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>4. Farmers Lane/ Between Petaluma &amp; Meda</td>
<td>56</td>
<td>NA</td>
</tr>
<tr>
<td>5. Farmers Lane/ Between Kawana &amp; Allan</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>6. Meda Avenue/ Between Kawana &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>7. Eaton Avenue/ Between Linwood &amp; West Linwood</td>
<td>62</td>
<td>28</td>
</tr>
<tr>
<td>8. Linwood Avenue/ Between Eaton &amp; South Linwood</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>9. South Linwood Avenue/ Between Linwood &amp; Kawana</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>10. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>61</td>
<td>20</td>
</tr>
<tr>
<td>11. Kawana Springs/ Between Meda &amp; Farmers</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>12. Allan Way/ West of Farmer Lane</td>
<td>54</td>
<td>NA</td>
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<td>13. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>14. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>15. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>63</td>
<td>32</td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.

excavation, grading, roadway and utility construction operations associated with the proposed project. In addition, there is the possibility that blasting would be required. Noise levels associated with blasting can be in excess of 100 dBA within 50 feet of detonation. Since noise from blasting typically decreases by 6 dBA with each doubling of distance, exterior receptors within 1,600 feet could experience noise levels greater than 70 dBA. Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-3

(a) If blasting occurs, it should be performed in accordance with the City of Santa Rosa’s imposed conditions. Property owners within a minimum of one-quarter-mile radius should be notified in advance as to the time and location of the blasting, and all reasonable recognized precautions to minimize impacts to surrounding properties should be used in accordance with City standards.

(b) Implement Mitigation Measures 3.2.5-1(a), 3.2.5-1(b), and 3.2.5-1(c).

Impact 3.2.5-4

The development of the Southeast Area Plan would expose future residents to noise from adjacent and nearby land uses. This is considered to be potentially significant impact. (PS)

The Southeast Area Plan is adjacent to potentially and occasionally noisy land uses. The Southeast Area Plan is adjacent to an industrial zoned area near the Area’s southwest corner. The industrial zoned property immediately adjacent to the Southeast Area Plan is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Southeast Area Plan residents.

The Sonoma County Fairgrounds is near the northern portion of the west boundary of the Southeast Area Plan. Several events occur annually which would produce noise such as the roar of a crowd or gas-powered vehicles. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-4

The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southeast Area Plan along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and Kawana Springs Road
and near the Sonoma County Fairgrounds to reduce existing and future potential noise from industrial land uses and the fairgrounds for existing and proposed Area Plan residents to 60 $L_{dn}$ or below. (1)

**PROPOSED PROJECTS**

**SETTING**

The Southeast Area Plan's noise setting section discusses acoustic fundamentals, applicable state and city regulatory background information, modeled existing noise levels, and measured existing noise levels. Specific noise sources and receivers near each of the eleven Proposed Projects is presented below.

**Existing Noise Sources and Receivers**

**Project #1: 1815 Meda.** The proposed site and the adjacent residential uses are exposed to minor roadway noise from Moraga Drive and Meda Avenue. Kawana School is located at the southern portion of Moraga Drive.

**Project #2: 2307 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are close. The fairgrounds are approximately 450 feet from Project #2.

**Project #3: 2555 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #3.

**Project #4: 2549 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1200 feet from Project #4.

**Project #5: 2595 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1500 feet from Project #5.
Project #6: Dauenhauer. The proposed site is adjacent to urban and rural residential areas. Small portions of the site are exposed to roadway noise from Linwood Avenue, Brookwood Avenue, and Allan Way. The fairgrounds are approximately 450 feet from the northwest corner of Project #6.

Project #7: 2375 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 600 feet from Project #7.

Project #8: Willow Creek. The proposed site is adjacent to an elementary school, church, urban residential areas, and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The southern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 1800 feet from the fairgrounds.

Project #9: Ellsworth. The proposed site is adjacent to rural residential areas. The site is exposed to roadway noise from Brookwood Avenue and Allan Way. The fairgrounds are approximately 450 feet from the west edge of Project #9.

Project #10: Kawana Meadows. The proposed site is adjacent to industrial and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The northern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 3100 feet from the fairgrounds.

Project #11: McIntosh. The proposed site and the adjacent rural residential uses are also exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #11.

IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology associated with the Proposed Projects is the same as what was presented for the Southeast Area Plan.
3.2.5 Noise Impact 3.2.5-5

The eleven 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 eleven 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. 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 eleven Proposed Projects would result traffic volumes which would result in increased noise levels on adjacent and nearby land uses. This is considered to be a significant impact. (S)

Traffic impacts associated with the eleven 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 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. Table 3.2.5-6 presents the $L_{dn}$ at 100 feet from the centerline of 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours.

Listed below are the eleven Proposed Projects and descriptions of where the 60 $L_{dn}$ noise contour would be located. Mitigation Measure 3.2.5-6 described below would apply to that portion of each project where residences would be located within the 60 $L_{dn}$ noise level.
Project #1: 1815 Meda. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would only occur along the eastern edge of the project (35 feet from the centerline of Meda Drive).

Project #2: 2307 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #3: 2555 Linwood. Future traffic noise levels would not exceed 60 $L_{dn}$ on this proposed site.

Project #4: 2549 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #5: 2595 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #6: Dauenhauer. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Farmers Lane, Allan Way, and Gordon Lane for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Allan Way, and Gordon Lane for the without Farmers Lane extension scenario. Future traffic noise levels would not exceed 70 $L_{dn}$ for the proposed park on this proposed site.

Project #7: 2375 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #8: Willow Creek. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Farmers Lane, Kawana Springs Road, Petaluma Hill Road and Meda Avenue for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along South Linwood Avenue, Eaton Avenue, Meda Avenue, Kawana Springs Road and Petaluma Hill Road for the without Farmers Lane extension scenario.
Project #9: Ellsworth. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur along Allan Way and Gordon Lane.

Project #10: Kawana Meadows. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur along Petaluma Hill Road, Kawana Springs Road, and Farmers Lane.

Project #11: McIntosh. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur only along Farmers Lane (220 feet from the centerline of Farmers Lane) for the with Farmers Lane extension scenario.

Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-6
Implement Mitigation Measure 3.2.5-2. (I)

Impact 3.2.5-7
The development of the eleven Proposed Projects would expose future residents to noise from adjacent and nearby land uses. This is considered to be potentially significant impact. (PS)

The eleven Proposed Projects are adjacent to potentially and occasionally noisy land uses. Project #10 is adjacent to an industrial zoned area. The industrial zoned property immediately adjacent to the Project #10 is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Project #10 residents.

The Sonoma County Fairgrounds is near Project # 6 and 9. Several events occur annually which would produce noise such as the roar of a crowd. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an insignificant level.

Mitigation Measure 3.2.5-7
The project developers for Project #10 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Project #10 along the east side of
Petaluma Hill Road to reduce existing and future potential noise from industrial land uses for proposed Project #10 residents to 60 $L_{dn}$ or below. The project developers for Projects #6 and 9 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Projects #6 and 9 to reduce existing and future potential noise from the fairgrounds for proposed Project #6 and 9 residents to 60 $L_{dn}$ or below. (I)

REFERENCES


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. 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.

DRAFT SOUTHEAST 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. 

At buildout, the Area Plan would support 325 jobs and create 2,207 dwelling units which would support 5,604 new residents. 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. Secondary population growth resulting from the Area Plan at buildout would amount to less than one percent (0.64 percent), of the projected population growth in Santa Rosa by the year 2010. Although this number is small in proportion to total growth, the following discussion would apply.

This 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 Southeast 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 potential secondary impact of the secondary households formed by direct project employees then becomes a primary impact of the future individual residential projects that add new housing. If no new housing is forthcoming in an area, then a successful residential location of one of these secondary households would mean the occupancy of an existing housing unit instead. In this case, the secondary household would not create an impact to a jurisdiction's public service, fiscal or physical environment, but simply be a substitute occupant of existing housing stock. If a project employee household could not locate within a particular location for any reason such as growth control, then a substitute location would be found and the potential secondary impact would occur there.

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 #8, Willow Creek with 15,000 square feet of commercial space, and Project #10, Kawana Meadows with 110,000 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 Farmers Lane Extension/infrastructure projects within the Southeast 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.

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.

Parcels that have been without public water and sewer service in the Southeast Plan area would have direct access to the Farmers Lane Extension project as a new arterial road and 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 Southeast Area), and more employment opportunities, as well as increased business sales (refer to the discussion above under the title Draft Southeast Santa Rosa Area Plan). Proposed projects that would have direct access to the Farmers Lane Extension project include Projects #6 (Dauenhauer Ranch), #8 (Willow Creek), #9 (Ellsworth Site), #10 (Kawana Meadows), and #11 (McIntosh...
Subdivision), which would comprise the bulk of currently proposed development within the Southeast Area Plan.

With the Farmers Lane Extension project in place, there could be pressure for increased general industry development along Yolanda Avenue west of Petaluma Hill Road because of increased access. The light industrial and warehousing distribution along Yolanda Avenue and Santa Rosa Boulevard could also experience the entry of commercial and retail businesses taking advantage of new residents within the Plan area and commuters because of the improved access Farmers Lane Extension would provide. This could fragment the large parcels along Yolanda Avenue reducing the potential for future manufacturing and warehouse uses for which such parcels were reserved. Improved access could also encourage higher intensity industrial development to replace or intensify the trucking operations that dominate Yolanda Avenue.

Finally, the Farmers Lane Extension project could indirectly create interest in expanding the Urban Boundary to the south. As development within the Urban Boundary nears buildout and parcels outside the Boundary become contiguous with the City limits, the marketability of these parcels would be expected to increase (marketability is also increased with the provision of sewer, water and drainage improvements). Some of these parcels are now used for farming and grazing. If proposed, expansion of the Urban Boundary would require separate environmental review.

**PROPOSED PROJECTS**

Growth resulting from the eleven proposed projects within the Southeast 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 Southeast 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 eleven 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 (refer to the discussion above under the title Farmers Lane Extension/Infrastructure Projects for additional data). As noted previously (see Section 2, Project Description), the proposed projects would be one component of the Southeast Area Plan, which in turn would require an amendment to the City's General Plan Map, and the Area Plan is required under the provisions of the General Plan. The Southeast 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, but the contribution to growth would not 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, Farmers Lane Extension/Infrastructure projects, and the eleven 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

SOUTHEAST AREA PLAN

• Implementation of the Area Plan would result in the loss of 297.3 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

• Construction of the Farmers Lane Extension would result in the loss of approximately 18 acres of Farmland of Local Importance as designated by the State Department of Conservation and Sonoma County.
5. Unavoidable Significant Adverse Impacts

PROPOSED PROJECTS

- Construction of the eleven proposed projects could result in the loss of 209.6 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

- 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.

However, the Southeast Area's contribution to this traffic problem would be relatively modest. During the PM peak hour, only one to two percent of the freeway traffic would be caused by traffic going to or from the Southeast Area. 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., Rohnert Park), and unincorporated areas of Sonoma County.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

- Buildout of the Southeast Area Plan would convert what is currently a semi-rural to rural setting to an urban setting. Plan development would constitute a significant change in visual conditions within southeast Santa Rosa. Thus the impact would be significant and unavoidable.

- Grading to construct the Farmers Lane Extension in hillside terrain between Kawana Springs and Petaluma Hill Road would potentially require the removal of existing oak trees. In the absence of grading plans for the project, the exact number of oak trees required for removal cannot be determined. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

PROPOSED PROJECTS

Project #6, Dauenhauer Ranch @ 96 acres:

- Project #6 construction would require the removal of about six oak trees. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.
5. Unavoidable Significant Adverse Impacts

Project #8, Willow Creek @ 140 acres:
- Project #8 construction would require the removal of an undetermined number of oak trees, but probably less than 15 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

Project #10, Kawana Meadows @ 49 acres:
- Project #10 construction would require the removal of an undetermined number of oak trees, but probably about 25 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

SOILS, GEOLOGY AND SEISMICITY

FARMERS LANE EXTENSION
- Alignment of the Farmers Lane Extension project would be subject to the damaging effects of surface rupture where the Extension crosses at least one trace of the Rodgers Creek Fault.

VEGETATION AND WILDLIFE

AREA PLAN, FARMERS LANE EXTENSION/INFRASTRUCTURE, PROPOSED PROJECTS
- Construction of the proposed Farmers Lane Extension would subject existing wildlife to road kill, disrupt daily wildlife movement and migration corridors, and fragment wildlife populations. Growth induced by proximity of the extended roadway could further reduce wildlife habitat and increase pressures on wildlife.

AIR QUALITY

SOUTHEAST AREA PLAN
- The Southeast Area Plan including Farmers Lane Extension would result in construction-related emissions which could cause temporary local exceedances in federal and/or State air quality standards.
- Southeast Area Plan development would result in vehicular, home heating, home cooling, and wood burning emission exceeding one percent of County totals.
PROPOSED PROJECTS

- The development of the eleven proposed projects would result in construction-related emissions which could cause temporary local exceedances in federal and/or start air quality standards.

- The proposed eleven projects would result in vehicular, home heating, home cooling and wood burning emissions exceeding one percent of County totals.

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 Southeast Area Plan, Farmers Lane Extension project, and the eleven individual project proposals within the Southeast 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 most of 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 Southeast quadrant of Santa Rosa bounded on the west 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. 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 Southeast 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 Farmers Lane Extension project, and individual housing 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 to rural setting to urban development, removal of an undetermined number of specimen oak trees, subjecting the proposed Farmers Lane Extension project to the damaging effects of surface rupture where the Extension would cross the Rodgers Creek Fault, Farmers Lane Extension obstructing a wildlife corridor within a tributary to Matanzas Creek, and loss of an undetermined amount of riparian woodland.

With respect to traffic issues, the land use changes proposed in the Southeast 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.

The table shows that approximately 2,700 fewer weekday vehicle trip ends would be generated by the Area Plan, which equates to about 200-250 fewer PM peak hour trips. The reduction in trips indicates that the Area Plan would result in better, or no worse, level of service impacts to intersections and to arterial corridors in the surrounding area, than the No Project Alternative.
### 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>Average Weekday Trip Ends</th>
<th>Total Daily Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-349 DU</td>
<td>10/DU</td>
<td>-3,490</td>
</tr>
<tr>
<td>Multifamily (Attached)</td>
<td>+400</td>
<td>7/DU</td>
<td>+2,800</td>
</tr>
<tr>
<td>Commercial(^1)</td>
<td>-39,900 sq. ft.</td>
<td>50/1,000 s.f.</td>
<td>-1,995</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>---</td>
<td>---</td>
<td><strong>-2,685</strong></td>
</tr>
</tbody>
</table>

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

DU = dwelling unit.

s.f. = gross usable square feet.
While some changes in analysis techniques have occurred since the EIR on the General Plan was prepared in 1991, the following represent the important differences with the Area Plan:

**US 101**

The Area Plan involves 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 generally provides greater capacity along US 101, and therefore, in some areas (primarily south of Hearn Avenue to Todd Road) 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 under the Area Plan than the No Project Alternative.

**Highway 12**

LOS is generally comparable between the two alternatives; both generally provide for LOS "D" or better.

**Santa Rosa Avenue**

The mitigated Area Plan option provides for somewhat better levels of service than the No Project alternative (generally "C" rather than "D"). The unmitigated project, however, would result in LOS "F".

**Petaluma Hill Road**

Under the Area Plan alternative, LOS is comparable to the No Project alternative. With mitigations, the Area Plan should make LOS somewhat better than the No Project alternative.

**Brookwood Avenue**

LOS would be comparable or slightly better with the Area Plan than with the No Project alternative.

The adopted 1991 General Plan Update includes the Farmers Lane Extension along substantially the same alignment as proposed in the Area Plan (although in the General Plan it is shown as connecting into Kawana Springs Road at Petaluma Hill Road.)
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 Southeast 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 trip generation by up to 6-8% per dwelling unit.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 Southeast 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 13 Area Plan elements are addressed as a comprehensive whole within the EIR. These elements include the eleven project proposals, the Farmers Lane Extension 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 Southeast 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 Southeast Area Plan, future EIRs dealing only with local environmental impacts, would likely not take into account potential beneficial long-term, region-wide effects. 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 Southeast Area Plan, environmental review that complements regional growth management strategies would not be undertaken, detracting from a certain efficiency that is possible within the planning and development process.

6.2 ALTERNATIVE CIRCULATION PLANS

NO FARMERS LANE EXTENSION

One of the alternatives tested as part of this EIR included effectively deleting Farmers Lane Extension from the circulation system. The land use alternatives are identical, but the two plans differ in terms of the circulation system. In the Project alternative, Farmers Lane Extension is built with two, three, or four travel lanes (depending on the location) arterial street, with an average running speed of 35 MPH. In the other alternative (see Figure 6-1) the Farmers Lane Extension has been deleted, and a Yolanda Extension curves northward to join Meda Avenue. In addition, the speed on Eaton Avenue was increased from 25 MPH (Project) to 30 MPH to provide a collector-type street that would divert traffic from paralleling local neighborhood streets. Rather than being a local street, Eaton would be treated as a collector street. In the northeastern portion of the Plan Area, no connection is provided to Farmers Lane, but a local street is built along a portion of the Farmers Lane Extension alignment to provide connections to other streets. The traffic speeds coded in the TRANPLAN model (in MPH) are shown in Figure 6-1 and Figure 6-2 to facilitate comparison by the reader. These two figures show the networks with and without Farmers Lane Extension.

Impacts of the No Farmers Lane Extension

Arterial Level of Service. A comparison of the mitigated LOS with and without Farmers Lane is shown in Table 6-2. Both of the alternatives shown in this table include the same mitigations, in order to provide a fair comparison of the impacts of Farmers Lane Extension.

Overall, LOS generally is worse without the Farmers Lane Extension. In a few cases, the Extension adds traffic on certain routes, reducing the speed and sometimes the letter LOS on that arterial segment. In most cases, the reduced travel speeds are not significant.
SOUTHEAST AREA PLAN

Dowling Associates

- TWO LANE
- THREE LANE
  One Travel Lane Each Direction
  Center Turn Lane
- THREE LANE
  Two Eastbound
  One Westbound
- FOUR LANE
  Two Travel Lanes Each Direction
  35 SPEED MPH

Figure 6.2 - 1
PLAN AREA ROADWAYS
With Farmers Lane Extension

Base Map: Santa Rosa Dept. of Community Development
Figure 6.2 - 2
PLAN AREA ROADWAYS
No Farmers Lane Extension
(Speeds in Parentheses)
**TABLE 6-2**

**FUTURE CORRIDOR ARTERIAL LEVEL OF SERVICE - WITH PLAN LAND USES**

**(INCLUDES INTERSECTION MITIGATIONS)**

**TRAVEL SPEEDS, IN MPH**

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<th>Street &amp; Segments(s)</th>
<th>Direction</th>
<th>Mitigated Project</th>
<th>Speed</th>
<th>LOS</th>
<th>Mitigated No Farmer's Lane</th>
<th>Speed</th>
<th>LOS</th>
<th>Hybrid Alt.</th>
<th>Speed</th>
<th>LOS</th>
<th>Unmitigated Project</th>
<th>Speed</th>
<th>LOS</th>
<th>Unmitigated No Farmer's Lane</th>
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<th>Hybrid</th>
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<td>Highway 12 - Hearn Ave</td>
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<td></td>
<td>15.7</td>
<td>D</td>
<td>12.4</td>
<td>E</td>
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<tr>
<td></td>
<td>NB</td>
<td>22.0</td>
<td>C</td>
<td>18.5</td>
<td>C</td>
<td>22.0</td>
<td>C</td>
<td></td>
<td>15.4</td>
<td>D</td>
<td>18.1</td>
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<td>C</td>
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<td>F</td>
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</table>

**Note:** Mitigations are as detailed in Section 3.1.4.3. Speeds for Farmers Lane Extension are shown in Table 3.1.4-8. 
* Oversaturated condition; speed calculation not possible. For explanation of facility types, see Table 3.1.4-3.Figure 6-3
Average Weekday Traffic Volumes. The average weekday traffic (ADT) with and without Farmers Lane Extension is shown in Figure 6-3. The impact of the No Farmers Lane Extension alternative increases traffic volumes on certain links, and decreases them on others. With the Farmers Lane Extension, volumes are generally lower on the 101 freeway and Highway 12, while Santa Rosa Avenue and Petaluma Hill Road become more attractive routes to traffic because of the Extension. Volumes on Eaton are substantially higher without the Extension than with, as traffic finds this an attractive route for longer and through trips. The 'No Extension' alternative also causes volumes to increase significantly on Brookwood and Gordon Lane. Overall, this represents a significant change in traffic volumes due to the 'No Extension' alternative.

Freeway Volumes

The changes in freeway volumes due to the No Farmers Lane Extension Alternative are shown in Table 6-3. The positive signs on most of the values indicate that the No Farmers Lane Extension alternative would increase volumes on the freeway, because less capacity would be provided on city streets. The additional volume change under the No Extension Alternative generally represents a significant increase in the traffic volumes.

Vehicle Miles of Travel

Vehicle miles of travel (VMT) is an important measure of street and highway system performance. It is a reflection of congestion in a street system, since as congestion increases, drivers often seek longer distance routes that are faster. VMT is also correlated with energy consumption and air pollution, since the more miles vehicle travels, the more energy the consume and pollution they emit. Finally, VMT is an important factor in estimating user costs, since the more miles of travel, the greater the cost to the motoring public. The increase in VMT under the No Extension Alternative represents a significant impact.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 9,100 miles per day. While these seems like a small amount, cumulated over a year, it represents on the order of 2.7 million miles. Using a fairly conservative cost of vehicle operations of 15 cents/mile, and
Not to Scale
Figures rounded to Nearest 100.

Figure 6.2 - 3
Projected Average Weekday Traffic (ADT) with Area Build-out
6. Alternatives to the Proposed Area Plan and Projects

**TABLE 6-3**

<table>
<thead>
<tr>
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(Negative numbers indicate decreases due to No Extension; positive numbers indicate increases with No Extension)
making no allowance for travel time savings, the user costs savings due to the Extension would thus amount to over $400,000 per year. Using an average fuel economy of 22 MPG, the equivalent fuel savings would be more than 120,000 gallons of gasoline per year.

Thru vs. Other Traffic

Most traffic seeks the fastest travel route between origin and destination. In the No Farmers Lane Extension alternative, many local streets such as Eaton and North Kawana Drive become more attractive alternatives. Because of this, traffic would tend to filter through neighborhoods on more traffic routes than with the Farmers Lane Extension alternative. This would have impacts on providing fewer gaps in traffic for making turns, backing out of driveways, or pedestrian crossings; and creates the potential for more accidents because of more (and generally higher speed) traffic on local streets. The street character of Eaton would change significantly, from a residential to a collector type street, under the No Farmers Lane Extension Alternative. This represents a significant impact.

Pedestrian and Bicycle Impacts

Because the No Farmers Lane Extension alternative would increase the amount of pass-thru traffic in neighborhoods, as well as the vehicle-miles travelled by local residents on local streets, there would be an increased potential for accidents between vehicles and pedestrians. A possible mitigation might be consideration of land uses along Eaton and Gordon, that receive considerably more traffic under this alternative.

ALTERNATIVE CIRCULATION PLAN

Description of Alternative. An alternative circulation plan tested as part of this EIR included a modification of the No Farmers Lane Extension Alternative, in which Yolanda Avenue would be extended easterly of its existing terminus at Petaluma Hill Road, curving north to connect to Eaton Avenue. In addition, Farmers Lane would be extended south of its existing terminus at Bennett Valley Road, so that it connects to the proposed Aston-Allen Way Extension (see Figure 6-3). Because this circulation plan combines elements of the Farmers Lane Extension (Project) and No Farmers Lane Extension alternative, it has been called the "Hybrid Alternative." The land use
alternatives used in the traffic model are identical. The modeled speeds on the Yolanda-Meda Avenue connection are 30 MPH, as are the speeds on Meda Avenue and on the Farmers Lane connection to Aston-Allen Way. The proposed roads were tested as two lanes (one travel lane in each direction).

**Impacts of the Hybrid Alternative**

**Arterial Level of Service.** A comparison of the mitigated LOS with and without Farmers Lane was shown in Table 6-2. Both of the Project and the Hybrid Alternative shown in this table include the same mitigations, in order to provide a fair comparison of the impacts. The impacts without any mitigations is also shown.

Overall, arterial LOS is a little better in some areas, and a little worse in others, with the Hybrid Alternative. The two generally provide comparable arterial service levels overall. The letter LOS on arterial segments are identical in most cases, and the differences are not statistically significant.

**Average Weekday Traffic Volumes.** The average weekday traffic (ADT) for the three alternatives is shown in Figure 6-3. The Hybrid Alternative is the third (bottom) of the three figures shown in each box in the figure. The Hybrid Alternative increases traffic volumes on certain links, and decreases them on others. In general, the term "Hybrid" is a good description of this alternative, because the impacts generally fall somewhere in between the "With Farmers Lane Extension" and the "Without Farmers Lane Extension" proposals. Some through traffic uses the key Hybrid Alternative links; probably this is best demonstrated by the link between Yolanda and Meda Avenues, where the daily traffic is almost 3,000 vehicles/day (although some of this traffic is destined for the Southeast Area). Also, the volumes on the Aston-Allen Way Extension are dramatically higher than for any of the other options; traffic from the Southeast destined for locations north of Bennett Valley Road makes fairly heavy use of this road section (about 10,000 vehicles per day). Volumes on Eaton drop compared to the other alternatives, but are somewhat higher on Meda Avenue than for the No Farmers Lane Extension Alternative, and substantially higher than the Project (with the Extension). Brookwood Avenue and Gordon Lane volumes are lower than the No

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1The model does account for the changes in accessibility that the Farmers Lane Extension creates, so although the total number of trips in all alternatives are constant, the distribution of those trips varies depending on the level of highway accessibility provided.
6. Alternatives to the Proposed Area Plan and Projects

Extension Alternative, but higher than the Project (with Extension). A comparison for each intersection is shown in the Appendix A.

Freeway Volumes

The changes in freeway volumes due to the No Farmers Lane Extension Alternative are shown in Table 6-4. The positive signs on most of the values indicate that the No Farmers Lane Extension alternative would increase volumes on the freeway, because less capacity would be provided on city streets. As with the No Farmers Lane alternative, the greatest impact would be on Highway 12 between US 101 and Farmers Lane. The impact on Highway 12 is less with the Hybrid Alternative than with the No Farmers Lane alternative, however. The additional volume change generally represents a significant increase in the traffic volumes.

Vehicle Miles of Travel

Vehicle miles of travel (VMT) is an important measure of street and highway system performance. It is a reflection of congestion in a street system, since as congestion increases, drivers often seek longer distance routes that avoid congested bottlenecks. VMT is also correlated with energy consumption and air pollution, since the more miles vehicles travel, the more energy they consume and pollution they emit. Finally, VMT is an important factor in estimating user costs, since the more miles of travel, the greater the cost to the motoring public. The increase in VMT over the Project represents a significant impact.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 3,500 miles per day. Cumulated over a year, it represents a reduction in VMT on the order of 1.06 million miles. Using a fairly conservative cost of vehicle operations of 15 cents/mile, and making no allowance for travel time savings, the user costs savings due to the Extension would thus amount to over $160,000 per year. Using an average fuel economy of 22 MPG, the equivalent fuel savings would be more than 48,100 gallons of gasoline per year. Compared to the No Farmers Lane Extension alternative, the Hybrid Alternative results in a reduction (i.e., benefit) of approximately 1,650 VMT, or 495,000 VMT per year.
### TABLE 6-4

YEAR 2010 FREEWAY MAINLINE CHANGES IN VOLUME DUE TO HYBRID ALTERNATIVE 4:30-5:30 PM IN VEHICLES PER HOUR (VPH)

(Negative numbers indicate decreases due to Hybrid Alternative; positive numbers indicate increases with Alternative)

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</table>
6. Alternatives to the Proposed Area Plan and Projects

**Thru vs. Other Traffic**

Most traffic seeks the fastest travel route between origin and destination. The character of Eaton Avenue would change significantly from the Project. Under the Hybrid Alternative, it would become a fairly heavily travelled collector type street. Also, the Aston-Allen Way Extension from Meda to Farmers Lane would be more heavily travelled than under the Project. With the Project, volumes are high enough to put this segment in the collector class, but volumes would be roughly double in this segment with the Hybrid Alternative. **This represents a significant impact.**

6.3 ALTERNATIVE AREA PLANS

This discussion is to document Alternative Area Plans prepared for the Southeast Area, describe reasons for their rejection and provide a general assessment of potential environmental impact as compared to the Draft Area Plan.

During preparation of the Southeast Area Plan (see Section 2.1, Background and Project Origination for relevant information), a 14-member Citizens Committee was appointed by the City Council to work with City of Santa Rosa Planning staff on preparation of the Southeast Area Plan. The Committee and staff met on nine occasions over a four month period beginning in mid-October of 1991. Topics for the initial meetings of the Committee included the identification of opportunities and constraints affecting the Southeast Area, exploring issues raised by new development in the area, and reviewing different concepts for creating neighborhoods.

In addition, the Committee reviewed fundamental General Plan information, such as the number of residential units anticipated for the area, the type of commercial uses called for by the Plan, and guidelines for parkland requirements.

With these basic subjects covered, sub-groups of the Committee then prepared three draft sketch plans for the Southeast Area. These preliminary sketches were then refined into draft plans by City staff. One additional plan, based on an alternative circulation program not featured in any of the other three plans was also prepared by City staff. These four alternative sketches were subsequently revised and refined several times through subsequent Committee meetings to produce a series of four Alternative Sketch Plans for the Southeast Area.
These Alternative Sketch Plans were examined at two neighborhood meetings held in January of 1992 in order to receive input from the community at large. Following the neighborhood meetings, City staff and the Committee met again to form a recommendation on which of the sketch plans should be recommended as the Preferred Sketch Plan for further development. A Preferred Sketch Plan was then prepared by City staff which was ultimately selected by the City Council which became the basis for preparing the Draft Southeast Area Plan.

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 Southeast Area. Major issues identified by the Committee and Planning staff included those pertaining to land use, protection of existing hillsides, rental vs. for sale housing mix, affordable housing, park and recreation facilities, circulation, potential air quality and noise impacts, mitigating potential traffic impacts, protection of the Kawana Springs/Colgan Creek corridor, oak tree preservation, 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.

The discussion below summarizes the major considerations regarding each of the four Sketch Plans that ultimately lead to preparation of a Preferred Sketch Plan. The following is taken from the Southeast Area Plan Staff Report dated February 19, 1992.

Sketch Plan #1:

"Compared to the General Plan, Sketch #1 could result in a slightly greater number of homes and, correspondingly, a higher population. The Plan would, however, also provide a better opportunity to create recognizable and "livable" neighborhoods. Most residents would live within walking distance of shopping and parks."
"The introduction of the Medium-Low Density residential category would also permit greater diversity in housing types throughout the study area.

"Major roadways, which are often perceived as the edge of a neighborhood, would be coincident with creeks and changes in topography, which are natural features that are often seen as neighborhood boundaries."

Sketch Plan #2:
*Compared to the General Plan and the other 3 alternative Sketches, #2 could result in more homes and a higher population in the study area. This is due in large part to a greater amount of the Medium-Low density land in this Sketch. As with Sketch #1, #2 would promote the formation of neighborhoods containing a variety of uses within walking distance of each other. Also as in #1, Sketch #2 would recognize natural features as neighborhood edges."

Sketch Plan #3:
*Of the three Sketches, alternative #3 is the most similar to the General Plan both in terms of the land use types and circulation. The major differences compared to the General Plan are the relocation of the Community shopping center to the southeast corner of Kawana Springs and Petaluma Hill Roads, and the designation of a neighborhood shopping site in the center of the study area.

"Sketch #3 would not provide for the creation of neighborhoods as well as plans #1 & #2, and the diversity of housing types in the first two Sketches would not be evident."

Sketch Plan #4:
Sketch #4 would produce around the same number of units as Sketch number 2, but the diversity in housing types across the study area would be different: in Sketch #4, all of Medium-Low and Medium density areas are located in the southwest portion of the study area. The three commercial areas and parks would be convenient to most residents."
"Creating livable neighborhoods would be difficult due to the introduction of major arterial level streets through the study area. Impacts of significantly increased traffic on Colgan Avenue would also be detrimental to a sense of neighborhood in areas outside the study area."

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 four sketch plans. Either of the four sketch plans was not selected because of greater population, lack of diversity in housing type, poor neighborhood identity, increased neighborhood traffic resulting from proposed circulation patterns, and other planning and environmental factors.

For Sketch #1, the demand on public services and utilities would be greater than for the other Sketch Plans or the Preferred Sketch Plan because of the greater population (2,501 residential units).

Traffic generation and resultant impacts on intersection service levels, air quality and increased noise would also occur because of the larger population. Visual quality impacts, potential increases in stormwater runoff and vegetation and wildlife impacts would be about the same as for the Preferred Sketch Plan because the development area would remain the same, 640 acres.

The potential environmental impacts for Sketch #2 would be about equal to Sketch #1 because there would not be a substantial difference in the number of dwelling units within the Plan area (2,489 residential units for Sketch #2). Sketch #3 impacts would be about equal to the Preferred Sketch Plan because the total dwelling unit counts of both plans are similar (2,149 residential units for Sketch #3 and 2,207 residential units for the Preferred Sketch Plan). However, as noted above, it was determined that Sketch #3 would not provide for the creation of neighborhoods as well as Sketch Plans #1 & #2, and there would be a reduced diversity of housing types. Thus, a broad potential housing market would not be accommodated as well in Sketch #3.

Sketch Plan #4 would generate environmental impacts about equal to Sketch Plans #1 and #2 because of the similar residential unit count (2,431 residential units for Sketch Plan #4). However, it was determined that creating livable neighborhoods under Sketch Plan #4 would be difficult due to the introduction of major arterial streets through the study area. Significantly increased traffic with
6. Alternatives to the Proposed Area Plan and Projects

attendant increased potential for adverse air quality and noise impacts along Colgan Avenue, was determined to be detrimental to a sense of neighborhood in areas outside the study area.

Thus, it is considered that the unavoidable, significant adverse environmental impacts of the Preferred Sketch Plan would be fewer in number, and of less significance than for either of the alternative sketch plans.

In support of this conclusion, as noted in Section 2, Project Description, the Preferred Sketch Plan became the Draft Area Plan through the Phase I Screening Analysis conducted prior to preparing the Draft EIR. Because there were no Plan changes required at that time to mitigate significant impacts which could not otherwise be mitigated by accepted standards, the Draft Area Plan, which is examined in this EIR, is essentially the same as the Preferred Sketch Plan. No additional mitigation measures are identified herein that would be able to mitigate the unavoidable significant adverse environmental impacts to levels of insignificance.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

SOUTHEAST 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 Southeast quadrant of Santa Rosa bounded on the west 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. The No Area Plan Alternative would not be the Environmentally Superior Alternative because without the Southeast 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.
6. Alternatives to the Proposed Area Plan and Projects

Reasons for not selecting either of the four alternative Sketch Plans as a Preferred Sketch Plan are as documented above under Section 6.3. Under buildout, the significant environmental impacts of the Southeast Area Plan are as explained above in Section 6.1. Because most of these 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.

FARMERS LANE EXTENSION

Construction of the Farmers Lane Extension between Bennett Valley Road and Highway 101 as an arterial is called for in the Santa Rosa General Plan. The unavoidable significant adverse impacts of constructing Farmers Lane include the loss of approximately 18 acres of Farmland of Local Importance, hillside grading and the removal of oak trees which would affect the visual quality of the Southeast Area, crossing of the Rodgers Creek Fault which would subject the Extension to the potentially damaging effects of surface rupture, and interrupting a wildlife corridor along a tributary to Matanzas Creek.

It should be pointed out that there is no possible alternative location for Farmers Lane Extension in the north part of the Southeast Area Plan. This is because the Extension would need to connect with the existing terminus of Farmers Lane at Bennett Valley Road. Thus, the Extension would need to cross the Rodgers Creek Fault and wildlife corridor as explained above prior to continuing through the Southeast Plan area. The significant adverse impacts of constructing the Extension at this location would occur in any event.

The Environmentally Superior Alternative for the Extension would be the Extension project with the recommended mitigation measures included in the project. This would comprise Farmers Lane Extension as the Mitigated Project. Thus, most of the significant impacts associated with the Extension would be reduced to insignificant levels as explained in each of the technical sections of this EIR.
ELEVEN PROJECT PROPOSALS

As explained previously, no alternative plans were submitted with the individual project proposals contained within the Plan area. The significant impacts of the project proposals are as noted above. Because most of these impacts can be mitigated to levels of insignificance, excluding the impacts as noted in Section 5, Unavoidable Significant Adverse Impacts, 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 (see also Appendix F, Mitigation Monitoring and Reporting Program).

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."

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, Farmers Lane Extension/Infrastructure projects, and eleven 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 the Plan area have not been prepared and the current Draft Area Plan proposal as well as eleven individual project proposals within the Plan area are focused on relatively broadly defined, long-term land use commitments. For example, while lotting patterns for most of the eleven project proposals are known, details relating to architecture and the physical layout and appearance of constructed elements are not known. 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 eleven 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; archaeological resources; 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, impacts on regional air quality, 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 eleven 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 public roads such as the proposed Farmers Lane Extension 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, much of the 640 acre Plan area is used for cattle grazing. The development of residential structures within the Plan area has converted a rural setting to a semi-rural setting, particularly in the northern part of the Plan area near Highway 12. Characteristics unique to the 640 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 the oak and grass covered rolling hillsides, and creeks and 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 640 acre Plan area is not being utilized to its maximum potential. Some parcels are not grazed or used for residential purposes, and there are a few dilapidated buildings in the area. Implementation of the Draft Area Plan, proposed Farmers Lane Extension/Infrastructure projects, and eleven individual project proposals would create changes in productivity, land use and visual character as defined in the respective sections of this BIR, 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 and mineral 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 hillside grading, removal of oak trees, and 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 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).
9. REPORT PREPARATION

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APPENDIX A

HISTORY OF FARMERS LANE EXTENSION PROPOSAL
HISTORY OF FARMERS LANE EXTENSION PROPOSAL

1978 The General Plan for the City of Santa Rosa was approved. This document shows Farmers Lane Extension as a four-lane expressway with a landscaped median.

1978 The Sonoma County General Plan was approved. Farmers Lane Extension is shown as a four-lane facility.

1980 An Environmental Impact Report (EIR) was prepared and certified for Farmers Lane Extension, which was planned to be a US 101 bypass, limited-access expressway. Sonoma County certified the EIR and adopted a road alignment, since part of the Farmers Lane Extension Corridor is in the County. The City did not adopt the alignment.

1982 Sonoma County adopted the South Santa Rosa Specific Plan, which shows Farmers Lane Extension and set detailed policies for development in southeast Santa Rosa.

1983 A Traffic Analysis studied the traffic impacts of building Farmers Lane Extension. It concluded that there would be major impacts on the Hearn Avenue freeway ramps.

1984 Sonoma County adopts Plan Line for Farmers Lane Extension.

1985 A Corridor Study for Farmers Lane Extension was conducted, as required by the General Plan, to evaluate the visual quality of the Corridor.

1987 The City scaled down the Farmers Lane Extension concept from a US 101 bypass to a local arterial street with a landscaped median and bicycle paths. The road would serve areas in the Corridor which would be developed in the future. The expressway concept was considered no longer appropriate due to existing development in the neighborhood of the freeway ramps, the feasible capacity of the Hearn Avenue interchange, and limited availability of new right-of-way between Santa Rosa Avenue and US 101.

1987 Due to changed development and traffic conditions, the City determined that adoption of a specific alignment for Farmers Lane Extension would require a new EIR.

Client Reference Information

Meda Ave. Soil Sampling, Job: 150.6

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

JS: rct
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Ref: Meda Ave. Soil Sampling, Job: 150.6

QUALITY CONTROL DATA

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**COMMENT:** Blank Results were ND on other analytes tested.
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<td>&lt;</td>
<td>Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.</td>
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<td>*</td>
<td>Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).</td>
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<tr>
<td>ICVS</td>
<td>Initial Calibration Verification Standard (External Standard).</td>
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<td>Average; sum of measurements divided by number of measurements.</td>
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<tr>
<td>mg/Kg (ppm)</td>
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<tr>
<td>mg/L</td>
<td>Concentration in units of milligrams of analyte per liter of sample.</td>
</tr>
<tr>
<td>mL/L/hr</td>
<td>Milliliters per liter per hour.</td>
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<td>MPN/100 mL</td>
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<td>ND</td>
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<td>NTU</td>
<td>Nephelometric turbidity units.</td>
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<td>RPD</td>
<td>Relative percent difference, 100 (\frac{\text{Value 1} - \text{Value 2}}{\text{mean value}}).</td>
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<tr>
<td>umhos/cm</td>
<td>Micromhos per centimeter.</td>
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**Method References**


# Chain of Custody Record

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**Job Number:** 150-6

**Project Name:** MEDA AVE SOIL SAMPLING  
**Sampled by:** Dale Radford

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**Remarks:**
- Please composite.
- Please return sample tubes.
- 5 day THU
  - 10-4-91
  - 10-4-91

**Signature:** Dale Radford  
**Company:** GIBLIN ASSOC.

**Received:** 10-4-91 1355

**Re relinquished by:**  
**Company:** NET PACIFIC

**Received:** 10-4-91 1355

**Signature:**

**Received by:**

**Re relinquished by:**

**Received by:**
APPENDIX C

RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHEAST SANTA ROSA GENERAL PLAN AREA
APPENDIX C
RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHEAST SANTA ROSA GENERAL PLAN AREA

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.

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.

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.
**Blennosperma bakeri**  
*Baker's Stickyseed*  
**STATUS:** FE/CE/List 1B  
**HABITAT:** Vernal Pools  
**BLOOM TIME:** March-April  
**HABIT:** annual  
**NOTES:** Occurs west of State Highway 101 in a vacant lot on the west side of Whistler Avenue, 0.1 mile north of the junction with Scenic Avenue, and along Horn Avenue south of Santa Rosa.

**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 Fountain Grove 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.

**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.

**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.
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: FE/SE/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.
Lilium rubescens
Chaparral Lily, Redwood Lily
STATUS: -/-/List 4
HABITAT: Chaparral, Coniferous Forest, Mixed Evergreen Forest
BLOOM TIME: June-July
HABIT: 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.

Limnanthes vinculans
Sebastopol Meadowfoam
STATUS: FE/SE/List 1B
HABITAT: Vernal pools, mesic meadows, swales, and marshy areas
BLOOM TIME: March-April
HABIT: 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 Horn Avenue approximately 2000 feet east of Santa Rosa Avenue. Seriously threatened by development, off-road vehicles, and agricultural land use changes, including wastewater irrigation.

Lomatium repostum
Napa Lomatium
STATUS: -/-/List 4
HABITAT: Chaparral, Foothill Woodland, Closed-cone Coniferous Forest
BLOOM TIME: April-May
HABIT: 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.

Navarretia plieantha
Many-flowered Navarretia
STATUS: C1/SE/List 1B
HABITAT: Vernal Pools, peaty lake margins
BLOOM TIME: May-June
HABIT: 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.

Pogogyne douglasii ssp. parviflora
Douglas' Pogogyne
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.

,**Quercus lobata**

Valley Oak, California White Oak
STATUS: -/-/List 4
HABITAT: Oak Woodland (valley bottoms & slopes), Riparian Forest, below 2,000 ft.
BLOOM TIME: February-April
HABIT: tree
NOTES: See text.

,**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.

,**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. Thought to be extinct throughout its range, last seen in 1969. Several occurrences were known in Sonoma County, including locations at Wright School and approximately 1 mile north of Santa Rosa High School. 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.

**BIRDS**

,**Elanus caerulea**

Black-shouldered Kite
STATUS: -/-*
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 observed foraging at several locations in the project area during surveys for this report. Suitable habitat for foraging and nesting present on or near project site.
**Appendix C**

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**Accipiter striatus**

**Sharp-shinned Hawk**

**STATUS:** -/-/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 near the northwestern boundary of the project area during surveys for this report. He activities led to the discovery of a nest in an oak tree near the crest of the ridge of hills in the northeastern portion of the project site. Though the bird was not seen at the nest, her frequent returns from foraging to the area of this nest, the location and construction of the nest, and the time of year indicate strongly that this species is nesting within project boundaries.

---

**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 known to occur in Santa Rosa and Kenwood USGS Quadrangles in Sonoma County. Precise locational information not available at this time. Data on location and numbers of breeding pairs maintained in the CDFG 1991 Spotted Owl Database. Habitat suitable for the maintenance and reproduction of this species is not present within project boundaries. None of this species observed during surveys for this report.

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**Coccyzus americanus occidentalis**

**Western Yellow Billed Cuckoo**

**STATUS:** C3B/E/BL 1972-81, 1986

**HABITAT:** Nests in riparian jungles of willow, often mixed with cottonwoods, blackberry, nettles or wild grape.

**NOTES:** Willow thicket habitat, suitable for the maintenance and reproduction of this species, is not present within project boundaries. None of this species observed during surveys for this report. Required by species for nesting is available on the site. Nearest reported occurrence: Copeland Creek, east of Lichau Road near Sonoma State College, 1975.

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**Sialia mexicana**

**Western Bluebird**

**STATUS:** -/-/ABL 1972, 1978-81, SC 1986

**HABITAT:** Year-round resident throughout much of California. Breed in open woodlands of oaks, riparian deciduous trees or conifers with herbaceous understories. Feed on insects which they capture in the air or on the ground from perches.

**NOTES:** Habitat suitable for the maintenance and reproduction of this species is present within project boundaries. Birds observed foraging at several locations in the project area during surveys for this report. Suitable habitat for foraging and nesting present on or near project site.
MAMMALS

Plecotus townsendii townsendii²
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 is available at various locations within the project 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 californiense²
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: Marginal habitat for breeding available in seeps and ponds within project boundaries. The presence of predatory fish in the larger ponds on the site precludes their use for breeding by this species. There were very few areas with any significant number of rodent burrows needed by this species for winter habitat. Searches and seining of aquatic habitats during field surveys for this report failed to establish presence on site. The nearest known occurrence of this species is at and near the abandoned Santa Rosa Air Center approximately 2 miles southwest of the project area (EIP field observations, May 10, 1993).

Rana aurora draytonii²
California Red-legged Frog
STATUS: C1/-/CSC
HABITAT: Quiet pools of streams, 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 species are available on the site along portions of Colgan Creek and unnamed tributaries to Colgan and Matanzas Creeks. No larvae or adults of this species were found during searches and seining of all seasonally available 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: Marginal habitat for breeding available in seeps and ponds within project boundaries. The presence of predatory fish in the larger ponds on the site precludes their use for breeding by this species. Searches and seining of aquatic habitats during field surveys for this report failed to establish presence on site.

_Clemmys marmorata marmorata^2_
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: Habitats of type required by species available on the site. None found during searches of seasonally available aquatic habitats and farm ponds located within project boundaries.

INVERTEBRATES

_Ischnura gemina^2_
San Francisco Fork-tailed Demselfly
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: Suitable habitats for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. Some, marginal habitats were found within project boundaries but 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: Small areas of marginal habitat for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. 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: Small areas of marginal habitat for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. None of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.
Appendix C

1 Sources:
California Natural Diversity Data Base (CNDDB) 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).

Guggolz, B.L., (undated). *Plants that are Rare, Rare and Endangered, or Limited in Distribution in the City of Santa Rosa.* Prepared for the City of Santa Rosa.


2 = Habitat and/or resources required for reproduction/maintenance present within project boundaries.

STATUS = Federal/State/Other (CNPS R-E-D codes)

**Federal Status Codes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>E</td>
<td>Listed as endangered</td>
</tr>
<tr>
<td>T</td>
<td>Listed as threatened</td>
</tr>
<tr>
<td>C1</td>
<td>Candidate for listing and enough data is on file to support federal listing</td>
</tr>
<tr>
<td>C2</td>
<td>Candidate for listing but threat or distribution data is insufficient to support listing at this time</td>
</tr>
<tr>
<td>C3a</td>
<td>Extinct</td>
</tr>
<tr>
<td>C3b</td>
<td>Taxonomically invalid</td>
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<tr>
<td>C3c</td>
<td>Too widespread or not threatened</td>
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</table>

**State of California Status Codes**

<table>
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<tr>
<td>E</td>
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<td>T</td>
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<tr>
<td>R</td>
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<td>C</td>
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**Other Status Codes**

Plants: California Native Plant Society Inventory Lists

<table>
<thead>
<tr>
<th>List</th>
<th>Description</th>
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<tbody>
<tr>
<td>List 1A</td>
<td>Presumed extinct</td>
</tr>
<tr>
<td>List 1B</td>
<td>Plants rare in California and elsewhere</td>
</tr>
<tr>
<td>List 2</td>
<td>Plants rare in California but more common elsewhere</td>
</tr>
<tr>
<td>List 3</td>
<td>Plants about which more information is needed - a review list</td>
</tr>
<tr>
<td>List 4</td>
<td>Plants with limited distributions - a watch list</td>
</tr>
</tbody>
</table>
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 D

COMMON, POTENTIAL AND OBSERVED PLANT AND WILDLIFE SPECIES IN THE SOUTHEAST SANTA ROSA PLAN AREA
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
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<tr>
<td>PLANTS</td>
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<tr>
<td>FERNS</td>
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<tr>
<td>Bracken Family</td>
<td>Dennstaedtiaceae</td>
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<tr>
<td>Bracken Fern</td>
<td>Pteridium aquilinum</td>
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<tr>
<td>Wood Fern Family</td>
<td>Dryopteridaceae</td>
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<tr>
<td>Wood Fern</td>
<td>Dryopteris arguta var. pubescens</td>
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<tr>
<td>Polypody Family</td>
<td>Polypodiaceae</td>
</tr>
<tr>
<td>California polypody</td>
<td>Polypodium californicum</td>
</tr>
<tr>
<td>Brake Family</td>
<td>Pteridaceae</td>
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<tr>
<td>Golden-backed Fern</td>
<td>Pentagramma triangularis</td>
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<tr>
<td>CONIFERS</td>
<td></td>
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<tr>
<td>CONIFEROPHYTA</td>
<td></td>
</tr>
<tr>
<td>Pine Family</td>
<td>Pinaceae</td>
</tr>
<tr>
<td>Douglas Fir</td>
<td>Pseudotsuga menziesii</td>
</tr>
</tbody>
</table>
FLOWERING PLANTS

Dicotyledons

Sumac or Cashew Family

Poison-oak

Carrot Family

Bur-chervil
Poison Hemlock
Lovage
Sweet Fennel
Purple Sanicle
Pacific Sanicle, Gambelweed

Dogbane Family

Periwinkle

Sunflower Family

Yarrow
Blow-wives
Chamomile
Agoseris
California Mugwort
Coyote Brush
Italian-thistle
Purple Star-thistle
Yellow Star-thistle
Bull Thistle
Horseweed
Philadelphia Daisy
Filago
Cudweed
Smooth Cat's-ear
Tidy Tips
Pineapple Weed
Slender Cottonweed
Bristly Ox-tongue
Woolly Marbles
Groundsel
Common Groundsel
Soliva
Spiny Sow-thistle
Common Sow-thistle
Salsify
Smooth Mules-ears

ANTHOPHYTA

Anacardiaceae

Toxicodendron diversilobum

Apiaceae

Anthriscus scandicinaria
Conium maculatum
Ligusticum sp.
Foeniculum vulgare
Sanicula bipinnatifida
Sanicula crassicaulis

Apocynaceae

Vinca major

Asteraceae

Achillea millefolium
Achyrachaena mollis
Anthemis sp.
Agoseris sp.
Artemisia douglasiana
Baccharis pilularis var. consanguinea
Carduus pycnocephalus
Centaurea calcitrapa
Centaurea solstitialis
Cirsium vulgare
Conyza sp.
Erigeron philadelphicus
Filago sp.
Gnaphalium sp.
Hypochoeris glabrata
Layia sp.
Matricaria matricarioides
Micropus Californicus
Picris echinoides
Psilocarphus sp.
Senecio sp.
Senecio vulgaris
Soliva sessilis
Sonchus asper
Sonchus oleraceus
Tragopogon porrifolius
Wyethia glabra
Borage Family
Fiddleneck
Popcorn Flower

Mustard Family
Summer Mustard
Mustard
Shepherd’s Purse
Shining Pepper Grass
Pepper Grass
Charlock
Wild Radish

Honeysuckle Family
Snowberry

Pink Family
Mouse-ear Chickweed
Windmill Pink

Morning Glory Family
Field Bindweed

Teasel Family
Teasel

Heath Family
Madrone

Legume Family
French Broom
Hill Lotus
Lotus
Bicolored Lupine
Lupine
Bur Clover
Sack Clover
Rose Clover
Tomcat Clover
Vetch

Boraginaceae
Amsinckia sp.
Plagiobothrys nothofulvus

Brassicaceae
Brassica geniculata
Brassica sp.
Capsella bursa-pastoris
Lepidium nitidum
Lepidium sp.
Raphanus raphanistrum
Raphanus sativus

Caprifoliaceae
Symphoricarpos rivularis

Caryophyllaceae
Cerastium glomeratum
Silene gallica

Convolvulaceae
Convolvulus arvensis

Dipsacaceae
Dipsacus sp.

Ericaceae
Arbutus menziesii

Fabaceae
Cytisus monspessulanus
Lotus micranthus
Lotus sp.
Lupinus bicolor
Lupinus sp.
Medicago polymorpha
Trifolium sp.
Trifolium hirtum
Trifolium tridentatum
Vicia sp.
Oak Family
Coast Live Oak
Black Oak
Valley Oak

Geranium Family
Red-stem Filaree
White-stem Filaree
Cut-leaved Geranium
Dove-leaved Geranium

Waterleaf Family
Shade-loving Nemophila

Buckeye Family
California Buckeye

Walnut Family
California Black Walnut

Mint Family
Mint
Hedge-nettle

Laurel Family
California Bay Laurel

Mallow Family
Cheese Weed

Myrtle Family
Blue Gum

Olive Family
Oregon Ash
Common Olive

Evening Primrose Family
Panicled Willow-herb

Fagaceae
Quercus agrifolia
Quercus kelloggi
Quercus lobata

Geraniaceae
Erodium cicutarium
Erodium moschatum
Geranium dissectum
Geranium molle

Hydrophyllaceae
Nemophila heterophylla

Hippocastanaceae
Aesculus califomica

Juglandaceae
Juglans hindsii

Lamiaceae
Mentha sp.
Stachys sp.

Lauraceae
Umbellularia califomica

Malvaceae
Malva sp.

Myrtaceae
Eucalyptus globulus

Oleaceae
Fraxinus latifolia
Olea europaea

Onagraceae
Epilobium paniculatum

92245
Poppy Family
California Poppy

Plantain Family
California Plantain
Narrow-leaved Plantain
Broad-leaved Plantain

Platanaceae
Western Sycamore

Polemoniaceae
Small-flowered Linanthus
Slender Phlox

Buckwheat Family
Common Knotweed
Sheep Sorrel
Curly Dock
Dock

Purslane Family
Miner's Lettuce

Primrose Family
Scarlet Pimpernel
Shooting Stars

Buttercup Family
California Buttercup

Rose Family
Western Lady's Mantle
Cotoneaster
California Strawberry
Toyon
Apple
Ninebark
Almond
Firethorn
Wood Rose

Papaveraceae
Eschscholzia californica

Plantaginaceae
Plantago erecta
Plantago lanceolata
Plantago major

Sycamore Family
Platanus racemosa

Phlox Family
Linanthus androsaceus
Microsteris gracilis

Polygonaceae
Polygonum aviculare
Rumex acetoella
Rumex crispus
Rumex sp.

Portulacaceae
Claytonia perfoliata ssp. perfoliata

Primulaceae
Anagallis arvensis
Dodecatheon hendersonii

Ranunculaceae
Ranunculus californicus

Rosaceae
Aphanes occidentalis
Cotoneaster sp.
Fragaria californica
Heteromeles arbutifolia
Malus sylvestris
Physocarpus capitatus
Prunus amygdalus
Pyracantha sp.
Rosa gymnocarpa
California Rose
Himalaya Berry

Madder Family
Bedstraw
Bedstraw
Climbing Bedstraw

Willow Family
Sandbar Willow
Arroyo Willow

Saxifrage Family
Woodland Star

Figwort Family
Bellardia
Common Monkeyflower
Valley Tassels, Coyote Tail
Yellow Parenticellia
Speedwell

Nightshade Family
Nightshade

Monocotyledons
Rush Family
Spikerush
Rush
Toad Rush
Iris-leaved Rush
Rushes
Wood-rush

Sedge Family
Carex
Umbrella Sedge

Rosa californicus
Rubus procerus

Rubiaceae

Galium aparinae
Galium sp.
Galium porrigens

Salicaceae

Salix hindsiana var. hindsiana
S. lasiolepis

Saxifragaceae

Lithophragma affinis

Scrophulariaceae

Bellardia trixago
Mimulus guttatus
Orthocarpus attenuatus
Parenticellia viscosa
Veronica sp.

Solanaceae

Solanum sp.

Juncaceae

Eleocharis sp.
Juncus balticus
Juncus bufonius
Juncus xiphioides
Juncus spp.
Luzula subsessilis

Cyperaceae

Carex sp.
Cyperus esculentus
### Grass Family
- Slender Wild Oats
- Little Rattlesnake Grass
- California Brome
- Ripgut Brome
- Soft Chess
- Pampas Grass
- Bermuda Grass
- Hedgehog Dogtail Grass
- California Oatgrass
- Blue Wildrye
- Creeping Wildrye
- Fescue
- Meadow Barley
- Alkali Barley
- Farmers Foxtail, Hare Barley
- Italian Rye grass
- California Beardgrass, Semaphore Grass
- Annual Bluegrass
- Pine Bluegrass
- Purple Needlegrass
- Annual Fescue

### Lily Family
- Soap Plant
- Blue Dicks
- White Brod iœa

### Iris Family
- Blue-eyed Grass

### Cattail Family
- Cattail

### TOTAL

<table>
<thead>
<tr>
<th>Poaceae</th>
<th>Liliaceae</th>
<th>Iridaceae</th>
<th>Typhaceae</th>
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<tbody>
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<td>Avena barbata</td>
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<td>Sisyrinchium bellum</td>
<td>Typha sp.</td>
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<td>Briza minor</td>
<td>Dichelostemma capitatum</td>
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<td>Bromus carinatus</td>
<td>Tritelleia hyacinthina</td>
<td>Typha sp.</td>
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<td>B. diandrus</td>
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<td>Cortaderia sp.</td>
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<td>Cynodon dactylon</td>
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<td>Poa scabrella</td>
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<td>Stipa pulchra</td>
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<tr>
<td>Vulpia sp.</td>
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### Mammals
- Opossum
- Ornate Shrew
- Vagrant Shrew
- Trowbridge's Shrew
- Broad-footed Mole
- California Myotis
- Yuma Myotis

### TOTAL

| Didelphis marsupialis | Sorex ornatus | S. vagrans | S. trobridgi
<table>
<thead>
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<th></th>
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<tbody>
<tr>
<td>+ Scapanus latamanus</td>
<td>Myotis californicus</td>
<td>M. yumahensis</td>
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</table>
Long-eared Myotis
Fringed Myotis
Western Pipistrelle
Big Brown Bat
Red Bat
Hoary Bat
Townsend's Big-eared Bat
Pallid Bat
Brazilian Free-tailed Bat
Western Mastiff Bat
Raccoon
Ringtail
Bobcat
Feral House Cat
Gray Fox
Red Fox
Coyote
Long-tailed Weasel
Mink
Badger
Striped Skunk
Spotted Skunk
California Ground Squirrel
Sonoma Chipmunk
Western Gray Squirrel
Botta's Pocket Gopher
California Kangaroo Rat
Western Harvest Mouse
Salt-marsh Harvest Mouse
Deer Mouse
Pinon Mouse
Dusky-footed Wood Rat
California Vole
Muskrat
Porcupine
Norway Rat
Black Rat
House Mouse
Blacktail Jackrabbit
Brush Rabbit
Mule Deer
TOTAL

REPTILES AND AMPHIBIANS

California Tiger Salamander
Pacific Giant Salamander
Rough-skinned Newt
California Newt

M. evotis
M. thysanodes
Pipistrellus hesperus
Eptesicus fuscus
Lasiurus borealis
L. cinereus
Plecotus townsendii
Antrozoa pallidus
Tadarida brasiliensis
Eumops perotis
+ Procyon lotor
Bassariscus astutus
Lynx rufus
+ Felis domesticus
+ Urocyon cinereoargenteus
Vulpes vulpes
+ Canis latrans
Mustela frenata
M. vison
+ Taxidea taxus
Mephitis mephitis
Spilogale putorius
+ Spermophilus beecheyi
Tamias sonomae
+ Sciurus griseus
+ Thomomys bottae
Dipodomys californicus
Reithrodontomys megalotis
R. raviventris raviventris
+ Peromyscus maniculatus
P. truei
Neotoma fuscipes
+ Microtus californicus
Ondatra zibethicus
Erethizon dorsatum
Rattus norvegicus
R. rattus
Mus musculus
+ Lepus californicus
Sylvilagus bachmani
+ Odocoileus hemionus

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Appendix D

Ensatina
California Slender Salamander
Arboreal Salamander
Western Toad
Pacific Treefrog
Red-legged Frog
Foothill Yellow-legged Frog
Bullfrog
Western Pond Turtle
Western Fence Lizard
Coast Horned Lizard
Western Skink
Southern Alligator Lizard
Northern Alligator Lizard
Rubber Boa
Ringneck Snake
Sharp-tailed Snake
Racer
Striped Racer
Coachwip
Pacific Gopher Snake
Common Kingsnake
Western Terrestrial Garter Snake
Western Aquatic Garter Snake
Common Garter Snake
Night Snake
Western Rattlesnake
TOTAL

BIRDS

Great Blue Heron
Green-backed Heron
Black-crowned Night-Heron
American Egret
Snowy Egret
Canada Goose
Mallard
Turkey Vulture
Black Shouldered Kite
Cooper’s Hawk
Sharp-shinned Hawk
Northern Harrier
Rough-legged Hawk (w)
Ferruginous Hawk (w)
Red-tailed Hawk
Red-shouldered Hawk
Swainson’s Hawk
Golden Eagle

+ Ensatina eschscholtzi xanthoptica
+ Batrachoseps attenuatus
  Aneides lugubris
  Bufo boreas
+ Hyla regilla
  Rana aurora
  R. boylei
  R. catesbeiana
  Clemmys marmorata marmarota
+ Sceloporus occidentalis
  Phrynosoma coronatum
  Eumeces skiltonianus
+ Gerrhonotus multicarinatus
  G. coerules
  Charina bottae
  Diadophis punctatus
  Contia tenuis
  Coluber constrictor
  Masticophis lateralis
  M. flagellum
  Pituophis melanoleucus
  Lampropeltis getulus
  Thamnophis elegans terrestris
  T. couchii aquaticus
  T. sirtalis
  Hypsiglena torquata
  Crotalus viridis

Ardea herodias
Buto ridae striatus
Nyctanassa violacea
Casmerodius albus
Egretta thula
Branta canadensis
Anas platyrhynchos
+ Cathartes aura
+ Elanus leucurus
Accipiter cooperi
+ A. striatus
  Circus cyaneus
  Buteo lagopus
  B. regalis
+ B. jamaicensis
+ B. lineatus
  B. swainsoni
  Aquila chrysaetos
Brown-headed Cowbird
Northern Oriole (s)
Hooded Oriole (s)
Western Meadowlark
Western Tanager (s)
Black-headed Grosbeak (s)
Lazuli Bunting (s)
Evening Grosbeak (w)
Purple Finch
House Finch
Pine Siskin
American Goldfinch
Lesser Goldfinch
Rufous-sided Towhee
Brown Towhee
Savannah Sparrow
Vesper Sparrow
Lark Sparrow
Rufous-crowned Sparrow
Grasshopper Sparrow (s)
Sage Sparrow
Dark-eyed Junco
Chipping Sparrow (s)
White-crowned Sparrow (w)
Golden-crowned Sparrow (w)
Fox Sparrow (w)
Lincoln's Sparrow (w)
Song Sparrow
San Pablo Song Sparrow

TOTAL

Brown-headed Cowbird
Icterus galbula
I. cucullatus
Sturnella neglecta
Piranga ludoviciana
Pheucticus melanocephalus
Passerina amoena
Coccothraustes vespertinus
Carpodacus purpureus
C. mexicanus
Spinus pinus
S. tristis
S. psaltria
Pipilo erythrophthalmus
P. fuscus
Passerculus sandwichensis
Poecetes eramino
Chondestes grammacus
Aimophila ruficeps
Ammomimus savannarum
Amphispiza belli
Junco hyemalis
Spizella passerina
Zonotrichia leucophrys
Z. atricapilla
Passerella iliaca
Melospiza lincolnii
M. melodia
M. m. samulis

All above listed plant species recorded during EIP field surveys April 13 and May 5, 1993.
Wildlife species observed during EIP field surveys April 5-6, and June 7, 1993 (+) or reliably reported (*).

(w) = Winter range only
(s) = Summer range only

Sources:


APPENDIX E

AIR QUALITY BACKGROUND INFORMATION
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 E-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
# TABLE E-1

## HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Adverse Affects</th>
</tr>
</thead>
</table>
| Ozone                         | Eye irritation.  
                                            Respiratory function impairment. |
| Carbon Monoxide               | Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin. |
|                               | Aggravation of cardiovascular disease.  
                                            Impairment of central nervous system function. |
|                               | Fatigue, headache, confusion, dizziness.  
                                            Can be fatal in the case of very high concentrations in enclosed places. |
| Nitrogen Dioxide              | Risk of acute and chronic respiratory illness.                                |
| Sulfur Dioxide                | Aggravation of chronic obstruction lung disease.  
                                            Increased risk of acute and chronic respiratory illness. |
| Total Suspended Particulate   | Increased risk of chronic respiratory illness with long exposure.  
                                            Altered lung function in children.  
                                            With SO₂, may produce acute illness. |
| PM₁₀                          | Particulate matter 10 microns or less in size (PM₁₀) which may be inhaled and possibly lodge in and/or irritate the lungs. |
| Sulfates                      | Decreased lung function.  
                                            Aggravation of asthmatic symptoms, cardiopulmonary disease. |
| Lead                          | Impairment of blood function and nerve construction.  
                                            Behavioral and learning problems in children. |
| Hydrogen Sulfide¹             | Impairment of the body to utilize oxygen.  
                                            Chronic exposure to low concentrations may result in conjunctivitis (red eye) or pulmonary edema. |
| Vinyl Chloride                | Angiosarcoma of the liver.  
                                            Possibly other cancers.  
                                            Possible effects on human reproduction. |

¹ 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.
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 E-2. This station is the closest air quality monitoring station to all projects in the Southeast Area Plan. The data in Table E-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.

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
<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 (PM10):</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/m³ = 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.

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 E-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 E-4. The emissions are presented in pounds per hour. To estimate annual emissions multiply by the number of days of construction.
### TABLE E-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 ca. 1-hr at curb ( \pm [(4m \times N-S \text{ Lanes}) + 4m], \pm [(4m \times E-W \text{ Lanes}) + 4m] )</td>
</tr>
<tr>
<td>X &amp; Y Receptor Coordinates</td>
<td>4 ca. 8-hr back 10m ( \pm [(4m \times N-S \text{ Lanes}) + 14m], \pm [(4m \times E-W \text{ Lanes}) + 14m] )</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 ( \pm [(\text{Cross-street Lanes} + 1) \times 4 \text{ m}] ) (Caltrans 1988)</td>
</tr>
<tr>
<td>Mixing Zone Width</td>
<td>( [12 \text{ ft} \times \text{(Number of Lanes)}] + 6 \text{ 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</td>
</tr>
<tr>
<td>Acceleration Time from 0 mph</td>
<td>40 mph = 8.9 s, 45 mph = 9.1 s, 50 mph = 9.8 s, 55 mph = 10.2 s</td>
</tr>
<tr>
<td>Speed</td>
<td>(Assuming at grade)</td>
</tr>
<tr>
<td>Emission Factor</td>
<td>Speed limits</td>
</tr>
<tr>
<td>Idle Emission Factor</td>
<td>E7EPSCF2 for Bay Area Air Basin-Sonoma County (CARB 1992)</td>
</tr>
<tr>
<td>Mixing Width Right &amp; Left</td>
<td>E7EPSCF2 for Bay Area Air Basin-Sonoma County at 5 mph (ibid)</td>
</tr>
<tr>
<td>Cycle Length</td>
<td>0 ft (If no canyon or bluffs)</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 E-4

EMISSION FACTORS FOR HEAVY-DUTY DIESEL AND GASOLINE POWERED CONSTRUCTION EQUIPMENT (POUNDS/HOUR)

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Reactive Organic Compounds (ROC)</th>
<th>Nitrogen Oxides (NO_x)</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>
</tr>
<tr>
<td>Motor Grader</td>
<td>0.04</td>
<td>0.71</td>
</tr>
<tr>
<td>Wheeled Loader</td>
<td>0.25</td>
<td>1.89</td>
</tr>
<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>
</tr>
</tbody>
</table>

| **GASOLINE**         |                                  |                        |
| Wheeled Tractor      | 0.50                             | 0.43                   |
| Motor Grader         | 0.56                             | 0.32                   |
| Wheeled Loader       | 0.70                             | 0.52                   |
| Roller               | 0.79                             | 0.36                   |
| Miscellaneous        | 0.73                             | 0.41                   |

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 G

COMPARISON OF FUTURE PLAN
INTERSECTION LEVELS OF SERVICE
WITH AND WITHOUT FARMERS LANE EXTENSION
TABLE 3.2.5-1
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND IN THE INDUSTRY

<table>
<thead>
<tr>
<th>A-Weighted</th>
<th>Sound Level in Decibels</th>
<th>Noise Environments</th>
<th>Subjective Impression</th>
</tr>
</thead>
<tbody>
<tr>
<td>At a Given Distance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Noise Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Defense Siren (100')</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jet Takoff (200')</td>
<td>130</td>
<td></td>
<td>Pain Threshold</td>
</tr>
<tr>
<td>Pile Driver (50')</td>
<td>120</td>
<td>Rock Music Concert</td>
<td></td>
</tr>
<tr>
<td>Ambulance Siren (100')</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight Cars (50')</td>
<td>100</td>
<td>Boiler Room</td>
<td>Very Loud</td>
</tr>
<tr>
<td>Pneumatic Drill (50')</td>
<td>90</td>
<td>Printing Press Plant</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Kitchen with Garbage Disposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Running</td>
<td></td>
</tr>
<tr>
<td>Vacuum Cleaner (10')</td>
<td>80</td>
<td>Data Processing Center</td>
<td>Moderately Loud</td>
</tr>
<tr>
<td>Department Store</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Traffic (100')</td>
<td>70</td>
<td>Private Business Office</td>
<td></td>
</tr>
<tr>
<td>Large Transformer (200')</td>
<td>60</td>
<td></td>
<td>Quiet</td>
</tr>
<tr>
<td>Soft Whisper (5')</td>
<td>50</td>
<td>Quiet Bedroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recording Studio</td>
<td>Threshold of Hearing</td>
</tr>
</tbody>
</table>

### TABLE 3.2.5-2

**SUMMARY OF THE PUBLIC HEALTH EFFECTS OF COMMUNITY NOISE AND THE NOISE LEVELS AT WHICH THEY CAN OCCUR**

<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>70 dBA</td>
</tr>
<tr>
<td>Vasoconstriction begins that can lead to high blood pressure</td>
<td></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>85 dBA</td>
</tr>
<tr>
<td>High frequency hearing loss in fetuses</td>
<td>75 dBA</td>
</tr>
<tr>
<td>Increased blood pressure in children</td>
<td>65 dBA (all long term)</td>
</tr>
<tr>
<td>Decreased reading ability, auditory discrimination or language development</td>
<td></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>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>60 dBA</td>
</tr>
<tr>
<td>5 to 12 feet between conversants</td>
<td>55 dBA</td>
</tr>
<tr>
<td>Over 12 feet between conversants</td>
<td></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.
## Land Use Compatibility

### Land Use Category

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure</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>Residential: Low-Density Single Family, Duplex, Mobile Homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential: Multiple Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Lodging: Motels, Hotels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditoriums, Concert Halls, Amphitheaters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Industrial, Manufacturing, Utilities, Agriculture</td>
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<td></td>
</tr>
</tbody>
</table>

### Legend

- **NORMALLY ACCEPTABLE**: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- **CONDITIONALLY ACCEPTABLE**: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- **GENERALLY UNACCEPTABLE**: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- **LAND USE DISCOURAGED**: New construction or development should generally not be undertaken.

**Source**: State of California General Plan Guidelines, 1990
### FIGURE 3.2.5-2

**Community Noise Exposure**

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Ldn or CNEL, dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Residential</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>

- **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.

**SOURCE**: GENERAL PLAN SANTA ROSA 2010, JULY 1991
Program

2. Require mitigations, where necessary, to meet stipulated noise standards, including the reduction of $L_{dn}/C_{NEL}$ to 45 in habitable rooms and to 60 $L_{dn}/C_{NEL}$ 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 with Santa Rosa and Sonoma County. Highway 101 has the highest daily traffic and it is between approximately 3300 to 8000 feet from the different projects. State Route 12 is between approximately 2200 to 8000 feet from the different projects. The Area Plan is located adjacent to low density rural residential areas which could generate various farm equipment and animal noises. The Sonoma fairgrounds is adjacent to the northern boundary of the Area Plan. The Area Plan is only minorly effected by train, and airplane noise.

There are industrial, residential, a school and a church land uses adjacent to building areas in the Area Plan. The industrial area is west of Petaluma Hill Road along Yolanda Avenue. The industrial, residential, a school and a church are sensitive to noise in varying degrees. The industrial areas are not very sensitive to noise. The church and school areas are sensitive to high noise levels primarily during the day. The residential areas would be sensitive to both indoor and outdoor noise levels 24 hours per day.
The Farmers Lane Extension would be through an existing rural residential and agriculture area and/or through the proposed low density residential area. Infrastructure improvements may be 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 extension and 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 six roadway links, incorporating data from Dowling Associates. 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 roadways and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. The existing noise levels range from 67 $L_{dn}$ at 100 feet from the centerline of Petaluma Hill Road, between Yolanda Avenue and Kawana Springs Road and 44 $L_{dn}$ at 100 feet from the centerline of Kawana Springs Road, east of Petaluma Hill Road.

Measured Existing Noise Levels. Specifically for this project, noise was measured at one location on May 17, 1993 from 10:57 am to 11:48 am. Noise was monitored approximately 100 feet south of the end of Moraga Drive near Kawana School within the Project #8 perimeter. The major noise sources were birds, Petaluma Hill Road, children at the school, and the light traffic on Moraga Drive. The maximum one minute reading was 52 dBA. This noise level corresponds with the passage of two airplanes over the site. The minimum one minute reading was 42 dBA. The average noise level for the monitoring period was 45 dBA. The measurements were taken with a Quest Electronics M-28 Noise Logging Dosimeter. The meter was calibrated before and after with a Quest Model CA-12B Sound Calibrator.

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 noise level is greater than the levels stated in the Noise Ordinance during non-exempt hours. Local traffic impacts on existing and proposed residential, multi-residential, and school areas are considered significant if the impact is 60 $L_{dn}$ or greater and if
### 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><strong>70</strong></td>
</tr>
<tr>
<td>1. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>65</td>
<td>43</td>
</tr>
<tr>
<td>3. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>4. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>5. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>6. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>61</td>
<td>20</td>
</tr>
</tbody>
</table>

NA = Noise Contour either does not exist or is within the roadway.
there is a noise level increase of 1 dBA or more. Local traffic impacts on existing or proposed playgrounds and neighborhood parks are considered significant if the impact is \(70 \text{ L}_{\text{dn}}\) or greater and if there is a noise level increase of 1 dBA or more. Local traffic impacts on existing and proposed office buildings and business commercial areas are considered significant if the impact is \(65 \text{ L}_{\text{dn}}\) or greater and if there is a noise level increase of 1 decibels or more. Interior noise levels are considered significant if the noise level is \(45 \text{ L}_{\text{dn}}\) or greater.

Methods

Two types of quantitative noise analyses are made in this DEIR. These involve, traffic noise, and construction noise.

Traffic Noise Analysis. Traffic noise modeling was completed using the model SOUND32. SOUND32 is the computer model STAMINA\(^5\), a Federal Highway Administration Level 2 Noise Prediction Model, modified by Caltrans with California vehicle noise emission levels.\(^6\) Traffic analysis calculated the \(\text{L}_{\text{dn}}\) at 100 feet and the distance to the 60, 65, and 70 \(\text{L}_{\text{dn}}\) 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.\(^7\) 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 years 1991, 1998 and 2010.\(^8\) Analysis were performed for the Existing, Year 2010 Plus Project Without Farmers Lane, and Year 2010 Plus Project With Farmers Lane scenarios. The \(\text{L}_{\text{dn}}\) at 100 feet from the centerline is used to determine the increase in project impacts. The distances to \(\text{L}_{\text{dn}}\) 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.

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.\(^9\) 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
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Noise Level at 50 Feet</th>
<th>Without Noise Control</th>
<th>With Feasible Noise Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthmoving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front Loaders</td>
<td>79</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Backhoes</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Dozers</td>
<td>80</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Tractors</td>
<td>80</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td>88</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Graders</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Trucks</td>
<td>91</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Pavers</td>
<td>89</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Materials Handling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Mixers</td>
<td>85</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Concrete Pumps</td>
<td>82</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Cranes</td>
<td>83</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Derricks</td>
<td>88</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Stationary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumps</td>
<td>76</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Generators</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Compressors</td>
<td>81</td>
<td>75</td>
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</tr>
<tr>
<td>Impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pile Drivers</td>
<td>101</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Jack Hammers</td>
<td>88</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Rock Drills</td>
<td>98</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>86</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saws</td>
<td>78</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Vibrators</td>
<td>76</td>
<td>75</td>
<td></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.
3.2.5 Noise

routines. The model was developed by William Bowlby 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.

Impact 3.2.5-1

Development of the Southeast Area Plan would cause temporary increases in construction noise levels on and around the Plan Area over the entire period of construction due to earthmoving, utility and general construction activities. This is considered to be short-term significant impact. (S)

Construction activities would temporarily increase noise levels in the Plan Area. These activities 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 the proposed project. 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 the noise impacts of nearby residents during noise-sensitive periods, construction within 1,600 feet of residents should be limited to between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on weekends. For construction areas less than 1,600 feet from residents, work may only occur outside the designated hours by special permit from the City of Santa Rosa stating the compelling environmental reasons for construction during those 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 four 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**

The development of the Southeast Area Plan and the Farmers Lane Extension/Infrastructure, in conjunction with cumulative traffic, would result in traffic noise impacts on the adjacent and nearby land uses. This is considered to be significant impact. (S)

The Southeast Area Plan residents at buildout would be exposed to noise levels greater than 60 L_{dn}. Noise levels from Petaluma Hill Road between Colgan and Yolanda and Brookwood Avenue between Bennett Valley and Allan Way would decrease below existing levels. While noise levels from Yolanda Avenue and Kawana Springs would increase. Traffic noise on Farmers Lane, Petaluma Hill Road, Kawana Springs Road, Meda Avenue, Eaton Avenue, Gordon Lane, and Allan Way in the year 2010 would produce noise levels above 60 L_{dn} adjacent to the roadways. Table 3.2.5-5 presents the L_{dn} at 100 feet from the centerline of 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours. Area Plan residents between 195
### TABLE 3.2.5-5

MODELED SOUTHEAST AREA PLAN YEAR 2010 WITH FARMERS LANE $L_{dn}$ 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>$L_{dn}$ at 100 ft.</th>
<th>Distance to Noise Contour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>70</td>
</tr>
<tr>
<td>1. Petaluma Hill/</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>South of Yolanda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Petaluma Hill/</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>Between Yolanda &amp; Kawana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Petaluma Hill/</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>Between Kawana &amp; Colgan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Farmers Lane/</td>
<td>65</td>
<td>46</td>
</tr>
<tr>
<td>Between Petaluma &amp; Meda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Farmers Lane/</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>Between Meda &amp; Kawana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Farmers Lane/</td>
<td>65</td>
<td>48</td>
</tr>
<tr>
<td>Between Kawana &amp; Allan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Farmers Lane/</td>
<td>66</td>
<td>56</td>
</tr>
<tr>
<td>Between Allan &amp; Bennett</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Meda Avenue/</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>Between Kawana &amp; Allan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Eaton Avenue/</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>Between Kawana &amp; Allan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Linwood Avenue/</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td>Between Eaton &amp; South Linwood</td>
<td></td>
<td></td>
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<tr>
<td>11. South Linwood Avenue/</td>
<td>52</td>
<td>NA</td>
</tr>
<tr>
<td>Between Linwood &amp; Kawana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Kawana Springs/</td>
<td>59</td>
<td>NA</td>
</tr>
<tr>
<td>Between Petaluma &amp; Meda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Kawana Springs/</td>
<td>57</td>
<td>NA</td>
</tr>
<tr>
<td>Between Meda &amp; Farmers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Allan Way/</td>
<td>60</td>
<td>NA</td>
</tr>
<tr>
<td>West of Farmer Lane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Brookwood Avenue/</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>Between Bennett &amp; Allan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Gordon Lane/</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>Between Bennett &amp; Allan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Yolanda Avenue/</td>
<td>65</td>
<td>46</td>
</tr>
<tr>
<td>Between Santa Rosa &amp; Petaluma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

NA = Noise Contour either does not exist or is within the roadway.
to 260 feet from the centerline of Farmers Lane would be exposed to noise levels equal or greater than 60 $L_{dn}$. Area Plan residents between 155 to 450 feet from Petaluma Hill Road's centerline would be exposed to significant noise levels. Area Plan residents within 81 feet of Kawana Springs Road's centerline would be exposed to noise levels equal or greater than 60 $L_{dn}$. Area Plan residents 100 feet from the centerline of Allan Way would be exposed to significant noise levels. Table 3.2.5-6 presents the $L_{dn}$ noise levels for 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 $L_{dn}$ contours. Implementation of following mitigation measure would reduce this impact 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 Southeast Area Plan along Farmers Lane Extension, along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and the northwest corner of Project #8, along Kawana Springs Road between Petaluma Hill Road and Farmers Lane Extension, along Meda Avenue, along Eaton Avenue, along Gordon Lane, and along Allan Way between Farmers Lane and Gordon Lane to reduce year 2010 exterior noise levels at existing and proposed residents to 60 $L_{dn}$ or below.

(1)

One roadway link on Farmers Lane between Allan Way and Bennett Valley Road was analyzed using the model SOUND32. This roadway was analyzed twice. Once with a six foot sound wall and the other time with a six foot berm. With a six foot sound wall, the distance to 60 $L_{dn}$ is reduced from 260 feet to 190 feet with the maximum noise level of 65 $L_{dn}$ behind the sound wall. With a six foot berm, the distance to the 60 $L_{dn}$ is reduced to 100 feet with the maximum noise level of 62 $L_{dn}$ behind the berm.

**Impact 3.2.5-3**

The development of the Farmers Lane Extension/Infrastructure would cause temporary increases in noise levels on and around the planned improvements 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 the planned improvements similar in magnitude to the impacts discussed in 3.2.5-1. These activities 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,
**TABLE 3.2.5-6**
MODELED SOUTHEAST AREA PLAN YEAR 2010 WITHOUT FARMERS LANE $L_{dn}$ 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>1. Petaluma Hill/ South of Yolanda</td>
<td>70</td>
<td>99</td>
</tr>
<tr>
<td>2. Petaluma Hill/ Between Yolanda &amp; Kawana</td>
<td>67</td>
<td>58</td>
</tr>
<tr>
<td>3. Petaluma Hill/ Between Kawana &amp; Colgan</td>
<td>64</td>
<td>42</td>
</tr>
<tr>
<td>4. Farmers Lane/ Between Petaluma &amp; Meda</td>
<td>56</td>
<td>NA</td>
</tr>
<tr>
<td>5. Farmers Lane/ Between Kawana &amp; Allan</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>6. Meda Avenue/ Between Kawana &amp; Allan</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>7. Eaton Avenue/ Between Linwood &amp; West Linwood</td>
<td>62</td>
<td>28</td>
</tr>
<tr>
<td>8. Linwood Avenue/ Between Eaton &amp; South Linwood</td>
<td>44</td>
<td>NA</td>
</tr>
<tr>
<td>9. South Linwood Avenue/ Between Linwood &amp; Kawana</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>10. Kawana Springs/ Between Petaluma &amp; Meda</td>
<td>61</td>
<td>20</td>
</tr>
<tr>
<td>11. Kawana Springs/ Between Meda &amp; Farmers</td>
<td>53</td>
<td>NA</td>
</tr>
<tr>
<td>12. Allan Way/ West of Farmer Lane</td>
<td>54</td>
<td>NA</td>
</tr>
<tr>
<td>13. Brookwood Avenue/ Between Bennett &amp; Allan</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>14. Gordon Lane/ Between Bennett &amp; Allan</td>
<td>58</td>
<td>NA</td>
</tr>
<tr>
<td>15. Yolanda Avenue/ Between Santa Rosa &amp; Petaluma</td>
<td>63</td>
<td>32</td>
</tr>
</tbody>
</table>

---

NA = Noise Contour either does not exist or is within the roadway.
excavation, grading, roadway and utility construction operations associated with the proposed project. In addition, there is the possibility that blasting would be required. Noise levels associated with blasting can be in excess of 100 dBA within 50 feet of detonation. Since noise from blasting typically decreases by 6 dBA with each doubling of distance, exterior receptors within 1,600 feet could experience noise levels greater than 70 dBA. Implementation of following mitigation measure would reduce this impact to an insignificant level.

**Mitigation Measure 3.2.5-3**

(a) If blasting occurs, it should be performed in accordance with the City of Santa Rosa's imposed conditions. Property owners within a minimum of one-quarter-mile radius should be notified in advance as to the time and location of the blasting, and all reasonable recognized precautions to minimize impacts to surrounding properties should be used in accordance with City standards.

(b) Implement Mitigation Measures 3.2.5-1(a), 3.2.5-1(b), and 3.2.5-1(c).

**Impact 3.2.5-4**

The development of the Southeast Area Plan would expose future residents to noise from adjacent and nearby land uses. This is considered to be potentially significant impact. (PS)

The Southeast Area Plan is adjacent to potentially and occasionally noisy land uses. The Southeast Area Plan is adjacent to an industrial zoned area near the Area's southwest corner. The industrial zoned property immediately adjacent to the Southeast Area Plan is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Southeast Area Plan residents.

The Sonoma County Fairgrounds is near the northern portion of the west boundary of the Southeast Area Plan. Several events occur annually which would produce noise such as the roar of a crowd or gas-powered vehicles. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an insignificant level.

**Mitigation Measure 3.2.5-4**

The project developers should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within the Southeast Area Plan along the east side of Petaluma Hill Road between the southwest corner of the Area Plan Boundary and Kawana Springs Road.
and near the Sonoma County Fairgrounds to reduce existing and future potential noise from industrial land uses and the fairgrounds for existing and proposed Area Plan residents to $60 \text{ L}_{dn}$ or below. (I)

PROPOSED PROJECTS

SETTING
The Southeast Area Plan's noise setting section discusses acoustic fundamentals, applicable state and city regulatory background information, modeled existing noise levels, and measured existing noise levels. Specific noise sources and receivers near each of the eleven Proposed Projects is presented below.

Existing Noise Sources and Receivers

**Project #1: 1815 Meda.** The proposed site and the adjacent residential uses are exposed to minor roadway noise from Moraga Drive and Meda Avenue. Kawana School is located at the southern portion of Moraga Drive.

**Project #2: 2307 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are close. The fairgrounds are approximately 450 feet from Project #2.

**Project #3: 2555 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #3.

**Project #4: 2549 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1200 feet from Project #4.

**Project #5: 2595 Linwood.** The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1500 feet from Project #5.
Project #6: Dauenhauer. The proposed site is adjacent to urban and rural residential areas. Small portions of the site are exposed to roadway noise from Linwood Avenue, Brookwood Avenue, and Allan Way. The fairgrounds are approximately 450 feet from the northwest corner of Project #6.

Project #7: 2375 Linwood. The proposed site and the adjacent rural residential uses are exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 600 feet from Project #7.

Project #8: Willow Creek. The proposed site is adjacent to an elementary school, church, urban residential areas, and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The southern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 1800 feet from the fairgrounds.

Project #9: Ellsworth. The proposed site is adjacent to rural residential areas. The site is exposed to roadway noise from Brookwood Avenue and Allan Way. The fairgrounds are approximately 450 feet from the west edge of Project #9.

Project #10: Kawana Meadows. The proposed site is adjacent to industrial and rural residential areas. The western edge borders a major arterial (Petaluma Hill Road). The northern portion borders a minor arterial (Kawana Springs Road). The northern portion of the site is approximately 3100 feet from the fairgrounds.

Project #11: McIntosh. The proposed site and the adjacent rural residential uses are also exposed to minor roadway noise from Linwood Avenue. The fairgrounds are approximately 1300 feet from Project #11.

IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology associated with the Proposed Projects is the same as what was presented for the Southeast Area Plan.
Impact 3.2.5-5

The eleven 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 eleven 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. 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 eleven Proposed Projects would result traffic volumes which would result in increased noise levels on adjacent and nearby land uses. This is considered to be a significant impact. (S)

Traffic impacts associated with the eleven 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 17 roadways for the Year 2010 with Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours. Table 3.2.5-6 presents the L_{dn} at 100 feet from the centerline of 15 roadways for the Year 2010 without Farmers Lane, and the distances from the centerline to the 60, 65, and 70 L_{dn} contours.

Listed below are the eleven Proposed Projects and descriptions of where the 60 L_{dn} noise contour would be located. Mitigation Measure 3.2.5-6 described below would apply to that portion of each project where residences would be located within the 60 L_{dn} noise level.
Project #1: 1815 Meda. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would only occur along the eastern edge of the project (35 feet from the centerline of Meda Drive).

Project #2: 2307 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #3: 2555 Linwood. Future traffic noise levels would not exceed 60 $L_{dn}$ on this proposed site.

Project #4: 2549 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #5: 2595 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #6: Dauenhauer. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Farmers Lane, Allan Way, and Gordon Lane for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Allan Way, and Gordon Lane for the without Farmers Lane extension scenario. Future traffic noise levels would not exceed 70 $L_{dn}$ for the proposed park on this proposed site.

Project #7: 2375 Linwood. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along the western edge of the project (135 feet from the centerline of Eaton Drive) for the without Farmers Lane extension scenario.

Project #8: Willow Creek. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along Farmers Lane, Kawana Springs Road, Petaluma Hill Road and Meda Avenue for the with Farmers Lane extension scenario. Future traffic noise levels greater than 60 $L_{dn}$ on this proposed site would occur along South Linwood Avenue, Eaton Avenue, Meda Avenue, Kawana Springs Road and Petaluma Hill Road for the without Farmers Lane extension scenario.
Project #9: Ellsworth. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur along Allan Way and Gordon Lane.

Project #10: Kawana Meadows. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur along Petaluma Hill Road, Kawana Springs Road, and Farmers Lane.

Project #11: McIntosh. Future traffic noise levels greater than 60 L$_{dn}$ on this proposed site would occur only along Farmers Lane (220 feet from the centerline of Farmers Lane) for the with Farmers Lane extension scenario.

Implementation of following mitigation measure would reduce this impact to an *insignificant* level.

**Mitigation Measure 3.2.5-6**

Implement Mitigation Measure 3.2.5-2. (I)

**Impact 3.2.5-7**

The development of the eleven Proposed Projects would expose future residents to noise from adjacent and nearby land uses. This is considered to be *potentially significant impact*.

The eleven Proposed Projects are adjacent to potentially and occasionally noisy land uses. Project #10 is adjacent to an industrial zoned area. The industrial zoned property immediately adjacent to the Project #10 is not being used for industrial uses at this time. Although, industrial uses could potentially impact future Project #10 residents.

The Sonoma County Fairgrounds is near Project #6 and 9. Several events occur annually which would produce noise such as the roar of a crowd. These events include the county fair, horse racing, and special attractions. Even events such as computer shows and doll shows generate additional noise through vehicular traffic. Implementation of following mitigation measure would reduce this impact to an *insignificant* level.

**Mitigation Measure 3.2.5-7**

The project developers for Project #10 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Project #10 along the east side of
Petaluma Hill Road to reduce existing and future potential noise from industrial land uses for proposed Project #10 residents to 60 \( \text{L}_{dn} \) or below. The project developers for Projects #6 and 9 should construct sound walls and/or berms and/or setbacks acceptable to the City of Santa Rosa within Projects #6 and 9 to reduce existing and future potential noise from the fairgrounds for proposed Project #6 and 9 residents to 60 \( \text{L}_{dn} \) or below. (I)

REFERENCES


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. 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.

DRAFT SOUTHEAST 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 325 jobs and create 2,207 dwelling units which would support 5,604 new residents. 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. Secondary population growth resulting from the Area Plan at buildout would amount to less than one percent (0.64 percent), of the projected population growth in Santa Rosa by the year 2010. Although this number is small in proportion to total growth, the following discussion would apply.

This 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 Southeast 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 potential secondary impact of the secondary households formed by direct project employees then becomes a primary impact of the future individual residential projects that add new housing. If no new housing is forthcoming in an area, then a successful residential location of one of these secondary households would mean the occupancy of an existing housing unit instead. In this case, the secondary household would not create an impact to a jurisdiction’s public service, fiscal or physical environment, but simply be a substitute occupant of existing housing stock. If a project employee household could not locate within a particular location for any reason such as growth control, then a substitute location would be found and the potential secondary impact would occur there.

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 #8, Willow Creek with 15,000 square feet of commercial space, and Project #10, Kawana Meadows with 110,000 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 Farmers Lane Extension/infrastructure projects within the Southeast 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.

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.

Parcels that have been without public water and sewer service in the Southeast Plan area would have direct access to the Farmers Lane Extension project as a new arterial road and 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 Southeast Area), and more employment opportunities, as well as increased business sales (refer to the discussion above under the title Draft Southeast Santa Rosa Area Plan). Proposed projects that would have direct access to the Farmers Lane Extension project include Projects #6 (Dauenhauer Ranch), #8 (Willow Creek), #9 (Ellsworth Site), #10 (Kawana Meadows), and #11 (McIntosh...
Subdivision), which would comprise the bulk of currently proposed development within the Southeast Area Plan.

With the Farmers Lane Extension project in place, there could be pressure for increased general industry development along Yolanda Avenue west of Petaluma Hill Road because of increased access. The light industrial and warehousing distribution along Yolanda Avenue and Santa Rosa Boulevard could also experience the entry of commercial and retail businesses taking advantage of new residents within the Plan area and commuters because of the improved access Farmers Lane Extension would provide. This could fragment the large parcels along Yolanda Avenue reducing the potential for future manufacturing and warehouse uses for which such parcels were reserved. Improved access could also encourage higher intensity industrial development to replace or intensify the trucking operations that dominate Yolanda Avenue.

Finally, the Farmers Lane Extension project could indirectly create interest in expanding the Urban Boundary to the south. As development within the Urban Boundary nears buildout and parcels outside the Boundary become contiguous with the City limits, the marketability of these parcels would be expected to increase (marketability is also increased with the provision of sewer, water and drainage improvements). Some of these parcels are now used for farming and grazing. If proposed, expansion of the Urban Boundary would require separate environmental review.

PROPOSED PROJECTS

Growth resulting from the eleven proposed projects within the Southeast 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 Southeast 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 eleven 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 (refer to the discussion above under the title Farmers Lane Extension/Infrastructure Projects for additional data). As noted previously (see Section 2, Project Description), the proposed projects would be one component of the Southeast Area Plan, which in turn would require an amendment to the City's General Plan Map, and the Area Plan is required under the provisions of the General Plan. The Southeast 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, but the contribution to growth would not 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, Farmers Lane Extension/Infrastructure projects, and the eleven 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

SOUTHEAST AREA PLAN

- Implementation of the Area Plan would result in the loss of 297.3 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

- Construction of the Farmers Lane Extension would result in the loss of approximately 18 acres of Farmland of Local Importance as designated by the State Department of Conservation and Sonoma County.
5. Unavoidable Significant Adverse Impacts

PROPOSED PROJECTS

• Construction of the eleven proposed projects could result in the loss of 209.6 acres of Farmlands of Local Importance as designated by the State Department of Conservation and Sonoma County.

TRAFFIC AND CIRCULATION

SOUTHEAST AREA PLAN

• 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.

However, the Southeast Area's contribution to this traffic problem would be relatively modest. During the PM peak hour, only one to two percent of the freeway traffic would be caused by traffic going to or from the Southeast Area. 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., Rohnert Park), and unincorporated areas of Sonoma County.

VISUAL QUALITY AND COMMUNITY CHARACTER

SOUTHEAST AREA PLAN

• Buildout of the Southeast Area Plan would convert what is currently a semi-rural to rural setting to an urban setting. Plan development would constitute a significant change in visual conditions within southeast Santa Rosa. Thus the impact would be significant and unavoidable.

• Grading to construct the Farmers Lane Extension in hillside terrain between Kawana Springs and Petaluma Hill Road would potentially require the removal of existing oak trees. In the absence of grading plans for the project, the exact number of oak trees required for removal cannot be determined. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

PROPOSED PROJECTS

Project #6, Dauenhauer Ranch @ 96 acres:

• Project #6 construction would require the removal of about six oak trees. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.
Project #8, Willow Creek @ 140 acres:

- Project #8 construction would require the removal of an undetermined number of oak trees, but probably less than 15 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

Project #10, Kawana Meadows @ 49 acres:

- Project #10 construction would require the removal of an undetermined number of oak trees, but probably about 25 specimens. Because of their height and spread, the oak trees represent a visual amenity and their removal would constitute a significant visual impact.

**SOILS, GEOLOGY AND SEISMICITY**

**FARMERS LANE EXTENSION**

- Alignment of the Farmers Lane Extension project would be subject to the damaging effects of surface rupture where the Extension crosses at least one trace of the Rodgers Creek Fault.

**VEGETATION AND WILDLIFE**

**AREA PLAN, FARMERS LANE EXTENSION/INFRASTRUCTURE, PROPOSED PROJECTS**

- Construction of the proposed Farmers Lane Extension would subject existing wildlife to road kill, disrupt daily wildlife movement and migration corridors, and fragment wildlife populations. Growth induced by proximity of the extended roadway could further reduce wildlife habitat and increase pressures on wildlife.

**AIR QUALITY**

**SOUTHEAST AREA PLAN**

- The Southeast Area Plan including Farmers Lane Extension would result in construction-related emissions which could cause temporary local exceedances in federal and/or State air quality standards.

- Southeast Area Plan development would result in vehicular, home heating, home cooling, and wood burning emission exceeding one percent of County totals.
PROPOSED PROJECTS

• The development of the eleven proposed projects would result in construction-related emissions which could cause temporary local exceedances in federal and/or start air quality standards.

• The proposed eleven projects would result in vehicular, home heating, home cooling and wood burning emissions exceeding one percent of County totals.

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 Southeast Area Plan, Farmers Lane Extension project, and the eleven individual project proposals within the Southeast 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 most of 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 Southeast quadrant of Santa Rosa bounded on the west 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. Thus the option of no development at all would not necessarily prevail.
6. Alternatives to the Proposed Area Plan and Projects

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 Southeast 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 Farmers Lane Extension project, and individual housing 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 to rural setting to urban development, removal of an undetermined number of specimen oak trees, subjecting the proposed Farmers Lane Extension project to the damaging effects of surface rupture where the Extension would cross the Rodgers Creek Fault, Farmers Lane Extension obstructing a wildlife corridor within a tributary to Matanzas Creek, and loss of an undetermined amount of riparian woodland.

With respect to traffic issues, the land use changes proposed in the Southeast 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.

The table shows that approximately 2,700 fewer weekday vehicle trip ends would be generated by the Area Plan, which equates to about 200-250 fewer PM peak hour trips. The reduction in trips indicates that the Area Plan would result in better, or no worse, level of service impacts to intersections and to arterial corridors in the surrounding area, than the No Project Alternative.
### 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>Average Week-day Trip Ends</th>
<th>Total Daily Trip Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Detached</td>
<td>-349 DU</td>
<td>10/DU</td>
<td>-3,490</td>
</tr>
<tr>
<td>Multifamily (Attached)</td>
<td>+400</td>
<td>7/DU</td>
<td>+2,800</td>
</tr>
<tr>
<td>Commercial¹</td>
<td>-39,900 sq. ft.</td>
<td>50/ 1,000 s.f.</td>
<td>-1,995</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>-2,685</strong></td>
</tr>
</tbody>
</table>

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

DU = dwelling unit.

s.f. = gross usable square feet.
While some changes in analysis techniques have occurred since the EIR on the General Plan was prepared in 1991, the following represent the important differences with the Area Plan:

**US 101**

The Area Plan involves 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 generally provides greater capacity along US 101, and therefore, in some areas (primarily south of Hearn Avenue to Todd Road) 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 under the Area Plan than the No Project Alternative.

**Highway 12**

LOS is generally comparable between the two alternatives; both generally provide for LOS "D" or better.

**Santa Rosa Avenue**

The mitigated Area Plan option provides for somewhat better levels of service than the No Project alternative (generally "C" rather than "D"). The unmitigated project, however, would result in LOS "F".

**Petaluma Hill Road**

Under the Area Plan alternative, LOS is comparable to the No Project alternative. With mitigations, the Area Plan should make LOS somewhat better than the No Project alternative.

**Brookwood Avenue**

LOS would be comparable or slightly better with the Area Plan than with the No Project alternative.

The adopted 1991 General Plan Update includes the Farmers Lane Extension along substantially the same alignment as proposed in the Area Plan (although in the General Plan it is shown as connecting into Kawana Springs Road at Petaluma Hill Road.)
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 Southeast 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 trip generation by up to 6-8% per dwelling unit.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 Southeast 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 13 Area Plan elements are addressed as a comprehensive whole within the EIR. These elements include the eleven project proposals, the Farmers Lane Extension 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 Southeast 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 Southeast Area Plan, future EIRs dealing only with local environmental impacts, would likely not take into account potential beneficial long-term, region-wide effects. 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 Southeast Area Plan, environmental review that complements regional growth management strategies would not be undertaken, detracting from a certain efficiency that is possible within the planning and development process.

6.2 ALTERNATIVE CIRCULATION PLANS

NO FARMERS LANE EXTENSION

One of the alternatives tested as part of this EIR included effectively deleting Farmers Lane Extension from the circulation system. The land use alternatives are identical, but the two plans differ in terms of the circulation system. In the Project alternative, Farmers Lane Extension is built with two, three, or four travel lanes (depending on the location) arterial street, with an average running speed of 35 MPH. In the other alternative (see Figure 6-1) the Farmers Lane Extension has been deleted, and a Yolanda Extension curves northward to join Meda Avenue. In addition, the speed on Eaton Avenue was increased from 25 MPH (Project) to 30 MPH to provide a collector-type street that would divert traffic from paralleling local neighborhood streets. Rather than being a local street, Eaton would be treated as a collector street. In the northeastern portion of the Plan Area, no connection is provided to Farmers Lane, but a local street is built along a portion of the Farmers Lane Extension alignment to provide connections to other streets. The traffic speeds coded in the TRANPLAN model (in MPH) are shown in Figure 6-1 and Figure 6-2 to facilitate comparison by the reader. These two figures show the networks with and without Farmers Lane Extension.

Impacts of the No Farmers Lane Extension

Arterial Level of Service. A comparison of the mitigated LOS with and without Farmers Lane is shown in Table 6-2. Both of the alternatives shown in this table include the same mitigations, in order to provide a fair comparison of the impacts of Farmers Lane Extension.

Overall, LOS generally is worse without the Farmers Lane Extension. In a few cases, the Extension adds traffic on certain routes, reducing the speed and sometimes the letter LOS on that arterial segment. In most cases, the reduced travel speeds are not significant.
SOUTHEAST AREA PLAN

Dowling Associates

- **TWO LANE**
- **THREE LANE**
  - One Travel Lane Each Direction
  - Center Turn Lane
- **THREE LANE**
  - Two Eastbound
  - One Westbound
- **FOUR LANE**
  - Two Travel Lanes Each Direction
  - 35 SPEED MPH

Figure 6.2 - 1
PLAN AREA ROADWAYS
With Farmers Lane Extension

Santa Rosa/Todd

Base Map: Santa Rosa Dept. of Community Development

© 1991
SOUTHEAST AREA PLAN

Dowling Associates

TWO LANE

THREE LANE
One Travel Lane Each Direction
Center Turn Lane

35 SPEED MPH

Figure 6.2 - 2
PLAN AREA ROADWAYS
No Farmers Lane Extension
(Speeds in Parentheses)

© 1993

Santa Rosa/Todd

Base Map: Santa Rosa Dept. of Community Development
### TABLE 6-2
FUTURE CORRIDOR ARTERIAL LEVEL OF SERVICE - WITH PLAN LAND USES  
(INCLUDES INTERSECTION MITIGATIONS)  
TRAVEL SPEEDS, IN MPH

<table>
<thead>
<tr>
<th>Street &amp; Segments(s)</th>
<th>Direction</th>
<th>Project Speed</th>
<th>Project LOS</th>
<th>No Farmer's Lane Speed</th>
<th>No Farmer's Lane LOS</th>
<th>Hybrid Alt. Speed</th>
<th>Hybrid Alt. LOS</th>
<th>Unmitigated Project Speed</th>
<th>Unmitigated Project LOS</th>
<th>Unmitigated No Farmer's Lane Speed</th>
<th>Unmitigated No Farmer's Lane LOS</th>
<th>Unmitigated Hybrid Speed</th>
<th>Unmitigated Hybrid LOS</th>
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<td>C</td>
<td>26.7</td>
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**Note:** Mitigations are as detailed in Section 3.1.4.3. Speeds for Farmers Lane Extension are shown in Table 3.1.4-8.  
* Oversaturated condition; speed calculation not possible. For explanation of facility types, see Table 3.1.4-3.Figure 6-3
Average Weekday Traffic Volumes. The average weekday traffic (ADT) with and without Farmers Lane Extension is shown in Figure 6-3. The impact of the No Farmers Lane Extension alternative increases traffic volumes on certain links, and decreases them on others. With the Farmers Lane Extension, volumes are generally lower on the 101 freeway and Highway 12, while Santa Rosa Avenue and Petaluma Hill Road become more attractive routes to traffic because of the Extension. Volumes on Eaton are substantially higher without the Extension than with, as traffic finds this an attractive route for longer and through trips. The 'No Extension' alternative also causes volumes to increase significantly on Brookwood and Gordon Lane. Overall, this represents a significant change in traffic volumes due to the 'No Extension' alternative.

Freeway Volumes

The changes in freeway volumes due to the No Farmers Lane Extension Alternative are shown in Table 6-3. The positive signs on most of the values indicate that the No Farmers Lane Extension alternative would increase volumes on the freeway, because less capacity would be provided on city streets. The additional volume change under the No Extension Alternative generally represents a significant increase in the traffic volumes.

Vehicle Miles of Travel

Vehicle miles of travel (VMT) is an important measure of street and highway system performance. It is a reflection of congestion in a street system, since as congestion increases, drivers often seek longer distance routes that are faster. VMT is also correlated with energy consumption and air pollution, since the more miles vehicle travels, the more energy they consume and pollution they emit. Finally, VMT is an important factor in estimating user costs, since the more miles of travel, the greater the cost to the motoring public. The increase in VMT under the No Extension Alternative represents a significant impact.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 9,100 miles per day. While these seems like a small amount, cumulated over a year, it represents on the order of 2.7 million miles. Using a fairly conservative cost of vehicle operations of 15 cents/mile, and
Figure 6.2 - 3
Projected Average Weekday Traffic (ADT) with Area Build-out
# TABLE 6-3

YEAR 2010 FREEWAY MAINLINE CHANGES IN VOLUME
DUE TO NO FARMERS LANE EXTENSION ALTERNATIVE
4:30-5:30 PM IN VEHICLES PER HOUR (VPH)

(Negative numbers indicate decreases due to No Extension; positive numbers indicate increases with No Extension)

<table>
<thead>
<tr>
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<th>Demand</th>
<th>Change in Demand</th>
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<td></td>
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<tr>
<td>12</td>
<td>Brookwood-Farmers Lane</td>
<td>EB</td>
<td>+600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WB</td>
<td>+300</td>
</tr>
</tbody>
</table>
making no allowance for travel time savings, the user costs savings due to the Extension would thus amount to over $400,000 per year. Using an average fuel economy of 22 MPG, the equivalent fuel savings would be more than 120,000 gallons of gasoline per year.

**Thru vs. Other Traffic**

Most traffic seeks the fastest travel route between origin and destination. In the No Farmers Lane Extension alternative, many local streets such as Eaton and North Kawana Drive become more attractive alternatives. Because of this, traffic would tend to filter through neighborhoods on more traffic routes than with the Farmers Lane Extension alternative. This would have impacts on providing fewer gaps in traffic for making turns, backing out of driveways, or pedestrian crossings; and creates the potential for more accidents because of more (and generally higher speed) traffic on local streets. The street character of Eaton would change significantly, from a residential to a collector type street, under the No Farmers Lane Extension Alternative. This represents a significant impact.

**Pedestrian and Bicycle Impacts**

Because the No Farmers Lane Extension alternative would increase the amount of pass-thru traffic in neighborhoods, as well as the vehicle-miles travelled by local residents on local streets, there would be an increased potential for accidents between vehicles and pedestrians. A possible mitigation might be consideration of land uses along Eaton and Gordon, that receive considerably more traffic under this alternative.

**ALTERNATIVE CIRCULATION PLAN**

**Description of Alternative.** An alternative circulation plan tested as part of this EIR included a modification of the No Farmers Lane Extension Alternative, in which Yolanda Avenue would be extended easterly of its existing terminus at Petaluma Hill Road, curving north to connect to Eaton Avenue. In addition, Farmers Lane would be extended south of its existing terminus at Bennett Valley Road, so that it connects to the proposed Aston-Allen Way Extension (see Figure 6-3). Because this circulation plan combines elements of the Farmers Lane Extension (Project) and No Farmers Lane Extension alternative, it has been called the "Hybrid Alternative." The land use
Alternatives to the Proposed Area Plan and Projects

6. Alternatives to the Proposed Area Plan and Projects

The modeled speeds on the Yolanda-Meda Avenue connection are 30 MPH, as are the speeds on Meda Avenue and on the Farmers Lane connection to Aston-Allen Way. The proposed roads were tested as two lanes (one travel lane in each direction).

Impacts of the Hybrid Alternative

Arterial Level of Service. A comparison of the mitigated LOS with and without Farmers Lane was shown in Table 6-2. Both of the Project and the Hybrid Alternative shown in this table include the same mitigations, in order to provide a fair comparison of the impacts. The impacts without any mitigations is also shown.

Overall, arterial LOS is a little better in some areas, and a little worse in others, with the Hybrid Alternative. The two generally provide comparable arterial service levels overall. The letter LOS on arterial segments are identical in most cases, and the differences are not statistically significant.

Average Weekday Traffic Volumes. The average weekday traffic (ADT) for the three alternatives is shown in Figure 6-3. The Hybrid Alternative is the third (bottom) of the three figures shown in each box in the figure. The Hybrid Alternative increases traffic volumes on certain links, and decreases them on others. In general, the term "Hybrid" is a good description of this alternative, because the impacts generally fall somewhere in between the "With Farmers Lane Extension" and the "Without Farmers Lane Extension" proposals. Some through traffic uses the key Hybrid Alternative links; probably this is best demonstrated by the link between Yolanda and Meda Avenues, where the daily traffic is almost 3,000 vehicles/day (although some of this traffic is destined for the Southeast Area). Also, the volumes on the Aston-Allen Way Extension are dramatically higher than for any of the other options; traffic from the Southeast destined for locations north of Bennett Valley Road makes fairly heavy use of this road section (about 10,000 vehicles per day). Volumes on Eaton drop compared to the other alternatives, but are somewhat higher on Meda Avenue than for the No Farmers Lane Extension Alternative, and substantially higher than the Project (with the Extension). Brookwood Avenue and Gordon Lane volumes are lower than the No

---

1The model does account for the changes in accessibility that the Farmers Lane Extension creates, so although the total number of trips in all alternatives are constant, the distribution of those trips varies depending on the level of highway accessibility provided.
Extension Alternative, but higher than the Project (with Extension). A comparison for each intersection is shown in the Appendix A.

Freeway Volumes

The changes in freeway volumes due to the No Farmers Lane Extension Alternative are shown in Table 6-4. The positive signs on most of the values indicate that the No Farmers Lane Extension alternative would increase volumes on the freeway, because less capacity would be provided on city streets. As with the No Farmers Lane alternative, the greatest impact would be on Highway 12 between US 101 and Farmers Lane. The impact on Highway 12 is less with the Hybrid Alternative than with the No Farmers Lane alternative, however. The additional volume change generally represents a significant increase in the traffic volumes.

Vehicle Miles of Travel

Vehicle miles of travel (VMT) is an important measure of street and highway system performance. It is a reflection of congestion in a street system, since as congestion increases, drivers often seek longer distance routes that avoid congested bottlenecks. VMT is also correlated with energy consumption and air pollution, since the more miles vehicles travel, the more energy they consume and pollution they emit. Finally, VMT is an important factor in estimating user costs, since the more miles of travel, the greater the cost to the motoring public. The increase in VMT over the Project represents a significant impact.

Comparisons of the daily model runs for the alternatives with and without the Farmers Lane Extension indicate that the Project (with the Extension) would reduce VMT by approximately 3,500 miles per day. Cumulated over a year, it represents a reduction in VMT on the order of 1.06 million miles. Using a fairly conservative cost of vehicle operations of 15 cents/mile, and making no allowance for travel time savings, the user costs savings due to the Extension would thus amount to over $160,000 per year. Using an average fuel economy of 22 MPG, the equivalent fuel savings would be more than 48,100 gallons of gasoline per year. Compared to the No Farmers Lane Extension alternative, the Hybrid Alternative results in a reduction (i.e., benefit) of approximately 1,650 VMT, or 495,000 VMT per year.
## TABLE 6-4

**YEAR 2010 FREEWAY MAINLINE CHANGES IN VOLUME DUE TO HYBRID ALTERNATIVE**

4:30-5:30 PM IN VEHICLES PER HOUR (VPH)

(Negative numbers indicate decreases due to Hybrid Alternative; positive numbers indicate increases with Alternative)

<table>
<thead>
<tr>
<th>Route</th>
<th>Segment</th>
<th>Change in Demand</th>
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</thead>
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<td>NB +500, SB 0</td>
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<td>Bellevue-Hearn (Yolanda)</td>
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<td>Hearn-Highway 12</td>
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<td>US 101-Brookwood</td>
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<td>Brookwood-Farmers Lane</td>
<td>EB +400, WB +300</td>
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</table>
6. Alternatives to the Proposed Area Plan and Projects

Thru vs. Other Traffic

Most traffic seeks the fastest travel route between origin and destination. The character of Eaton Avenue would change significantly from the Project. Under the Hybrid Alternative, it would become a fairly heavily travelled collector type street. Also, the Aston-Allen Way Extension from Meda to Farmers Lane would be more heavily travelled than under the Project. With the Project, volumes are high enough to put this segment in the collector class, but volumes would be roughly double in this segment with the Hybrid Alternative. This represents a significant impact.

6.3 ALTERNATIVE AREA PLANS

This discussion is to document Alternative Area Plans prepared for the Southeast Area, describe reasons for their rejection and provide a general assessment of potential environmental impact as compared to the Draft Area Plan.

During preparation of the Southeast Area Plan (see Section 2.1, Background and Project Origination for relevant information), a 14-member Citizens Committee was appointed by the City Council to work with City of Santa Rosa Planning staff on preparation of the Southeast Area Plan. The Committee and staff met on nine occasions over a four month period beginning in mid-October of 1991. Topics for the initial meetings of the Committee included the identification of opportunities and constraints affecting the Southeast Area, exploring issues raised by new development in the area, and reviewing different concepts for creating neighborhoods.

In addition, the Committee reviewed fundamental General Plan information, such as the number of residential units anticipated for the area, the type of commercial uses called for by the Plan, and guidelines for parkland requirements.

With these basic subjects covered, sub-groups of the Committee then prepared three draft sketch plans for the Southeast Area. These preliminary sketches were then refined into draft plans by City staff. One additional plan, based on an alternative circulation program not featured in any of the other three plans was also prepared by City staff. These four alternative sketches were subsequently revised and refined several times through subsequent Committee meetings to produce a series of four Alternative Sketch Plans for the Southeast Area.
These Alternative Sketch Plans were examined at two neighborhood meetings held in January of 1992 in order to receive input from the community at large. Following the neighborhood meetings, City staff and the Committee met again to form a recommendation on which of the sketch plans should be recommended as the Preferred Sketch Plan for further development. A Preferred Sketch Plan was then prepared by City staff which was ultimately selected by the City Council which became the basis for preparing the Draft Southeast Area Plan.

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 Southeast Area. Major issues identified by the Committee and Planning staff included those pertaining to land use, protection of existing hillsides, rental vs. for sale housing mix, affordable housing, park and recreation facilities, circulation, potential air quality and noise impacts, mitigating potential traffic impacts, protection of the Kawana Springs/Colgan Creek corridor, oak tree preservation, 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.

The discussion below summarizes the major considerations regarding each of the four Sketch Plans that ultimately lead to preparation of a Preferred Sketch Plan. The following is taken from the Southeast Area Plan Staff Report dated February 19, 1992.

**Sketch Plan #1:**

*Compared to the General Plan, Sketch #1 could result in a slightly greater number of homes and, correspondingly, a higher population. The Plan would, however, also provide a better opportunity to create recognizable and "livable" neighborhoods. Most residents would live within walking distance of shopping and parks.*
EXISTING CONDITIONS-VIEW 1: VIEW FROM KAWANA SPRINGS ROAD AT PETALUMA HILL ROAD LOOKING EAST INTO PROJECT #8

FIGURE H-5A
CONCEPTUAL PHOTOMONTAGE - VIEW 1: VIEW FROM KAWANA SPRINGS ROAD
AT PETALUMA HILL ROAD LOOKING EAST INTO PROJECT #8

SOURCE: SQUARE ONE VIDEO

FIGURE H-5B
EXISTING CONDITIONS - VIEW 2: VIEW FROM YOLANDA AVENUE AT PETALUMA HILL ROAD LOOKING EAST INTO PROJECT #10
CONCEPTUAL PHOTOMONTAGE-VIEW 3: VIEW FROM THE SOUTHERLY END OF
THE PROPOSED EXTENSION OF EATON AVENUE, LOOKING SOUTHEAST INTO PROJECT #8 AT THE TOWN CENTER SITE

FIGURE H-6B
EXISTING CONDITIONS - VIEW 3: VIEW FROM THE SOUTHERLY END OF THE PROPOSED EXTENSION OF EATON AVENUE, LOOKING SOUTHEAST INTO PROJECT #8 AT THE TOWN CENTER SITE

FIGURE H-7A

SOURCE: SQUARE ONE VIDEO
CONCEPTUAL PHOTOMONTAGE-VIEW 2: VIEW FROM YOLANDA AVENUE AT PETALUMA HILL ROAD LOOKING EAST INTO PROJECT #10

SOURCE: SQUARE ONE VIDEO

FIGURE H-7B
EXISTING CONDITIONS-VIEW 4: VIEW FROM LINWOOD AVENUE, LOOKING NORTH INTO PROJECT #11

SOURCE: SQUARE ONE VIDEO
CONCEPTUAL PHOTOMONTAGE-VIEW 4: VIEW FROM LINWOOD AVENUE,
LOOKING NORTH INTO PROJECT #11

SOURCE: SQUARE ONE VIDEO

FIGURE H-8B
APPENDIX I

SUMMARY OF SCOPE BY MAJOR TOPIC AREA
SOUTHEAST SANTA ROSA AREA PLAN EIR
"The introduction of the Medium-Low Density residential category would also permit greater diversity in housing types throughout the study area.

"Major roadways, which are often perceived as the edge of a neighborhood, would be coincident with creeks and changes in topography, which are natural features that are often seen as neighborhood boundaries."

Sketch Plan #2:
"Compared to the General Plan and the other 3 alternative Sketches, #2 could result in more homes and a higher population in the study area. This is due in large part to a greater amount of the Medium-Low density land in this Sketch. As with Sketch #1, #2 would promote the formation of neighborhoods containing a variety of uses within walking distance of each other. Also as in #1, Sketch #2 would recognize natural features as neighborhood edges."

Sketch Plan #3:
"Of the three Sketches, alternative #3 is the most similar to the General Plan both in terms of the land use types and circulation. The major differences compared to the General Plan are the relocation of the Community shopping center to the southeast corner of Kawana Springs and Petaluma Hill Roads, and the designation of a neighborhood shopping site in the center of the study area.

"Sketch #3 would not provide for the creation of neighborhoods as well as plans #1 & #2, and the diversity of housing types in the first two Sketches would not be evident."

Sketch Plan #4:
Sketch #4 would produce around the same number of units as Sketch number 2, but the diversity in housing types across the study area would be different: in Sketch #4, all of Medium-Low and Medium density areas are located in the southwest portion of the study area. The three commercial areas and parks would be convenient to most residents."
"Creating livable neighborhoods would be difficult due to the introduction of major arterial level streets through the study area. Impacts of significantly increased traffic on Colgan Avenue would also be detrimental to a sense of neighborhood in areas outside the study area."

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 four sketch plans. Either of the four sketch plans was not selected because of greater population, lack of diversity in housing type, poor neighborhood identity, increased neighborhood traffic resulting from proposed circulation patterns, and other planning and environmental factors.

For Sketch #1, the demand on public services and utilities would be greater than for the other Sketch Plans or the Preferred Sketch Plan because of the greater population (2,501 residential units).

Traffic generation and resultant impacts on intersection service levels, air quality and increased noise would also occur because of the larger population. Visual quality impacts, potential increases in stormwater runoff and vegetation and wildlife impacts would be about the same as for the Preferred Sketch Plan because the development area would remain the same, 640 acres.

The potential environmental impacts for Sketch #2 would be about equal to Sketch #1 because there would not be a substantial difference in the number of dwelling units within the Plan area (2,489 residential units for Sketch #2). Sketch #3 impacts would be about equal to the Preferred Sketch Plan because the total dwelling unit counts of both plans are similar (2,149 residential units for Sketch #3 and 2,207 residential units for the Preferred Sketch Plan). However, as noted above, it was determined that Sketch #3 would not provide for the creation of neighborhoods as well as Sketch Plans #1 & #2, and there would be a reduced diversity of housing types. Thus, a broad potential housing market would not be accommodated as well in Sketch #3.

Sketch Plan #4 would generate environmental impacts about equal to Sketch Plans #1 and #2 because of the similar residential unit count (2,431 residential units for Sketch Plan #4). However, it was determined that creating livable neighborhoods under Sketch Plan #4 would be difficult due to the introduction of major arterial streets through the study area. Significantly increased traffic with
attendant increased potential for adverse air quality and noise impacts along Colgan Avenue, was determined to be detrimental to a sense of neighborhood in areas outside the study area.

Thus, it is considered that the unavoidable, significant adverse environmental impacts of the Preferred Sketch Plan would be fewer in number, and of less significance than for either of the alternative sketch plans.

In support of this conclusion, as noted in Section 2, Project Description, the Preferred Sketch Plan became the Draft Area Plan through the Phase I Screening Analysis conducted prior to preparing the Draft EIR. Because there were no Plan changes required at that time to mitigate significant impacts which could not otherwise be mitigated by accepted standards, the Draft Area Plan, which is examined in this EIR, is essentially the same as the Preferred Sketch Plan. No additional mitigation measures are identified herein that would be able to mitigate the unavoidable significant adverse environmental impacts to levels of insignificance.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE
SOUTHEAST 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 Southeast quadrant of Santa Rosa bounded on the west 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. The No Area Plan Alternative would not be the Environmentally Superior Alternative because without the Southeast 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 four alternative Sketch Plans as a Preferred Sketch Plan are as documented above under Section 6.3. Under buildout, the significant environmental impacts of the Southeast Area Plan are as explained above in Section 6.1. Because most of these 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.

FARMERS LANE EXTENSION

Construction of the Farmers Lane Extension between Bennett Valley Road and Highway 101 as an arterial is called for in the Santa Rosa General Plan. The unavoidable significant adverse impacts of constructing Farmers Lane include the loss of approximately 18 acres of Farmland of Local Importance, hillside grading and the removal of oak trees which would affect the visual quality of the Southeast Area, crossing of the Rodgers Creek Fault which would subject the Extension to the potentially damaging effects of surface rupture, and interrupting a wildlife corridor along a tributary to Matanzas Creek.

It should be pointed out that there is no possible alternative location for Farmers Lane Extension in the north part of the Southeast Area Plan. This is because the Extension would need to connect with the existing terminus of Farmers Lane at Bennett Valley Road. Thus, the Extension would need to cross the Rodgers Creek Fault and wildlife corridor as explained above prior to continuing through the Southeast Plan area. The significant adverse impacts of constructing the Extension at this location would occur in any event.

The Environmentally Superior Alternative for the Extension would be the Extension project with the recommended mitigation measures included in the project. This would comprise Farmers Lane Extension as the Mitigated Project. Thus, most of the significant impacts associated with the Extension would be reduced to insignificant levels as explained in each of the technical sections of this EIR.
ELEVEN PROJECT PROPOSALS

As explained previously, no alternative plans were submitted with the individual project proposals contained within the Plan area. The significant impacts of the project proposals are as noted above. Because most of these impacts can be mitigated to levels of insignificance, excluding the impacts as noted in Section 5, Unavoidable Significant Adverse Impacts, 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 (see also Appendix F, Mitigation Monitoring and Reporting Program).

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."

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, Farmers Lane Extension/Infrastructure projects, and eleven 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 the Plan area have not been prepared and the current Draft Area Plan proposal as well as eleven individual project proposals within the Plan area are focused on relatively broadly defined, long-term land use commitments. For example, while lotting patterns for most of the eleven project proposals are known, details relating to architecture and the physical layout and appearance of constructed elements are not known. 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 eleven Area Plan project proposals would have long-term effects in the following areas: land use; traffic and circulation; visual
7. The Relationship Between Short-term Use of the Environment and Long-term Productivity

quality and community character; public services and utilities; archaeological resources; 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, impacts on regional air quality, 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 eleven 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 public roads such as the proposed Farmers Lane Extension 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, much of the 640 acre Plan area is used for cattle grazing. The development of residential structures within the Plan area has converted a rural setting to a semi-rural setting, particularly in the northern part of the Plan area near Highway 12. Characteristics unique to the 640 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 the oak and grass covered rolling hillsides, and creeks and 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 640 acre Plan area is not being utilized to its maximum potential. Some parcels are not grazed or used for residential purposes, and there are a few dilapidated buildings in the area. Implementation of the Draft Area Plan, proposed Farmers Lane Extension/Infrastructure projects, and eleven 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 and mineral 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
8. Irreversible Environmental Changes that Would Occur from Implementation of the Proposed Project

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 hillside grading, removal of oak trees, and 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 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).
9. REPORT PREPARATION

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APPENDIX A

HISTORY OF FARMERS LANE EXTENSION PROPOSAL
HISTORY OF FARMERS LANE EXTENSION PROPOSAL

1978 The General Plan for the City of Santa Rosa was approved. This document shows Farmers Lane Extension as a four-lane expressway with a landscaped median.

1978 The Sonoma County General Plan was approved. Farmers Lane Extension is shown as a four-lane facility.

1980 An Environmental Impact Report (EIR) was prepared and certified for Farmers Lane Extension, which was planned to be a US 101 bypass, limited-access expressway. Sonoma County certified the EIR and adopted a road alignment, since part of the Farmers Lane Extension Corridor is in the County. The City did not adopt the alignment.

1982 Sonoma County adopted the South Santa Rosa Specific Plan, which shows Farmers Lane Extension and set detailed policies for development in southeast Santa Rosa.

1983 A Traffic Analysis studied the traffic impacts of building Farmers Lane Extension. It concluded that there would be major impacts on the Hearn Avenue freeway ramps.

1984 Sonoma County adopts Plan Line for Farmers Lane Extension.

1985 A Corridor Study for Farmers Lane Extension was conducted, as required by the General Plan, to evaluate the visual quality of the Corridor.

1987 The City scaled down the Farmers Lane Extension concept from a US 101 bypass to a local arterial street with a landscaped median and bicycle paths. The road would serve areas in the Corridor which would be developed in the future. The expressway concept was considered no longer appropriate due to existing development in the neighborhood of the freeway ramps, the feasible capacity of the Hearn Avenue interchange, and limited availability of new right-of-way between Santa Rosa Avenue and US 101.

1987 Due to changed development and traffic conditions, the City determined that adoption of a specific alignment for Farmers Lane Extension would require a new EIR.

APPENDIX B

SITE #1 SOIL SAMPLE ANALYSIS
Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager
## Descriptor, Lab No. and Results

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### KEY TO ABBREVIATIONS and METHOD REFERENCES

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<td>ICVS</td>
<td>Initial Calibration Verification Standard (External Standard).</td>
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<td>mean</td>
<td>Average; sum of measurements divided by number of measurements.</td>
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<td>mg/Kg (ppm)</td>
<td>Concentration in units of milligrams of analyte per kilogram of sample, (parts per million).</td>
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<td>Concentration in units of milligrams of analyte per liter of sample.</td>
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<td>Milliliters per liter per hour.</td>
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- Please return sample tubes.

5 day TSR
per DR 10/4/91

GIBLIN ASSOC.

Date: 10-4-91
Time: 1355
APPENDIX C

RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHEAST SANTA ROSA GENERAL PLAN AREA
APPENDIX C

RARE, ENDANGERED OR THREATENED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR IN THE SOUTHEAST SANTA ROSA GENERAL PLAN AREA

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.

*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.

*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.
Blennosperma bakeri
Baker's Stickyseed
STATUS: FE/CE/List 1B
HABITAT: Vernal Pools
BLOOM TIME: March-April
HABIT: annual
NOTES: Occurs west of State Highway 101 in a vacant lot on the west side of Whistler Avenue, 0.1 mile north of the junction with Scenic Avenue, and along Horn Avenue south of Santa Rosa.

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.

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.

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.
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:** FE/SE/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.
**Lilium rubescens**  
Chaparral Lily, Redwood Lily  
STATUS: -/-/List 4  
HABITAT: Chaparral, Coniferous Forest, Mixed Evergreen Forest  
BLOOM TIME: June-July  
HABIT: 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.

**Limnanthes vinculans**  
Sebastopol Meadowfoam  
STATUS: FE/SE/List 1B  
HABITAT: Vernal pools, mesic meadows, swales, and marshy areas  
BLOOM TIME: March-April  
HABIT: 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 Horn Avenue approximately 2000 feet east of Santa Rosa Avenue. Seriously threatened by development, off-road vehicles, and agricultural land use changes, including wastewater irrigation.

**Lomatium repostum**  
Napa Lomatium  
STATUS: -/-/List 4  
HABITAT: Chaparral, Foothill Woodland, Closed-cone Coniferous Forest  
BLOOM TIME: April-May  
HABIT: 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.

**Navarretia plieantha**  
Many-flowered Navarretia  
STATUS: C1/SE/List 1B  
HABITAT: Vernal Pools, peaty lake margins  
BLOOM TIME: May-June  
HABIT: 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.

**Pogogyne douglasii ssp. parviflora**  
Douglas' Pogogyne  
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.

Quercus lobata
Valley Oak, California White Oak
STATUS: -/-/List 4
HABITAT: Oak Woodland (valley bottoms & slopes), Riparian Forest, below 2,000 ft.
BLOOM TIME: February-April
HABIT: tree
NOTES: See text.

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.

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. Thought to be extinct throughout its range, last seen in 1969. Several occurrences were known in Sonoma County, including locations at Wright School and approximately 1 mile north of Santa Rosa High School. 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.

BIRDS
Elanus caerulea
Black-shouldered Kite
STATUS: -/-/*
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 observed foraging at several locations in the project area during surveys for this report. Suitable habitat for foraging and nesting present on or near project site.
Appendix C

Accipiter striatus<sup>2</sup>

**Sharp-shinned Hawk**

**STATUS:** -/-/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 near the northwestern boundary of the project area during surveys for this report. Her activities led to the discovery of a nest in an oak tree near the crest of the ridge of hills in the northeastern portion of the project site. Though the bird was not seen at the nest, her frequent returns from foraging to the area of this nest, the location and construction of the nest, and the time of year indicate strongly that this species is nesting within project boundaries.

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 known to occur in Santa Rosa and Kenwood USGS Quadrangles in Sonoma County. Precise locational information not available at this time. Data on location and numbers of breeding pairs maintained in the CDFG 1991 Spotted Owl Database. Habitat suitable for the maintenance and reproduction of this species is not present within project boundaries. None of this species observed during surveys for this report.

Coccyzus Americanus occidentalis

**Western Yellow Billed Cuckoo**

**STATUS:** C3B/E/BL 1972-81, 1986

**HABITAT:** Nests in riparian jungles of willow, often mixed with cottonwoods, blackberry, nettles or wild grape.

**NOTES:** Willow thicket habitat, suitable for the maintenance and reproduction of this species, is not present within project boundaries. None of this species observed during surveys for this report. Required by species for nesting is available on site. Nearest reported occurrence: Copeland Creek, east of Lichau Road near Sonoma State College, 1975.

Sialia mexicana<sup>2</sup>

**Western Bluebird**

**STATUS:** -/-/ABL 1972, 1978-81, SC 1986

**HABITAT:** Year-round resident throughout much of California. Breed in open woodlands of oaks, riparian deciduous trees or conifers with herbaceous understories. Feed on insects which they capture in the air or on the ground from perches.

**NOTES:** Habitat suitable for the maintenance and reproduction of this species is present within project boundaries. Birds observed foraging at several locations in the project area during surveys for this report. Suitable habitat for foraging and nesting present on or near project site.
MAMMALS

*Plecotus townsendii townsendii*\(^2\)

**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 is available at various locations within the project 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*\(^2\)

**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:** Marginal habitat for breeding available in seeps and ponds within project boundaries. The presence of predatory fish in the larger ponds on the site precludes their use for breeding by this species. There were very few areas with any significant number of rodent burrows needed by this species for winter habitat. Searches and seining of aquatic habitats during field surveys for this report failed to establish presence on site. The nearest known occurrence of this species is at and near the abandoned Santa Rosa Air Center approximately 2 miles southwest of the project area (EIP field observations, May 10, 1993).

*Rana aurora draytonii*\(^2\)

**California Red-legged Frog**

**STATUS:** C1/-/CSC

**HABITAT:** Quiet pools of streams, 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 species are available on the site along portions of Colgan Creek and unnamed tributaries to Colgan and Matanzas Creeks. No larvae or adults of this species were found during searches and seining of all seasonally available 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: Marginal habitat for breeding available in seeps and ponds within project boundaries. The presence of predatory fish in the larger ponds on the site precludes their use for breeding by this species. Searches and seining of aquatic habitats during field surveys for this report failed to establish presence on site.

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: Habitats of type required by species available on the site. None found during searches of seasonally available aquatic habitats and farm ponds located within project boundaries.

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: Suitable habitats for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. Some, marginal habitats were found within project boundaries but 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: Small areas of marginal habitat for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. 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: Small areas of marginal habitat for this species exist within project boundaries. Preliminary searches for this species and likely habitats for its existence were performed for this report. None of this species was found. Intensive, timely surveys would be required to determine the presence of this species on the site.
Sources:
California Natural Diversity Data Base (CNDDB) 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).

Guggolz, B.L., (undated). *Plants that are Rare, Rare and Endangered, or Limited in Distribution in the City of Santa Rosa*. Prepared for the City of Santa Rosa.


Habitat and/or resources required for reproduction/maintenance present within project boundaries.

**STATUS** = Federal/State/Other (CNPS R-E-D codes)

**Federal Status Codes**

- **E** = Listed as endangered
- **T** = Listed as threatened
- **C1** = Candidate for listing and enough data is on file to support federal listing
- **C2** = Candidate for listing but threat or distribution data is insufficient to support listing at this time
- **C3a** = Extinct
- **C3b** = Taxonomically invalid
- **C3c** = Too widespread or not threatened

**State of California Status Codes**

- **E** = Endangered
- **T** = Threatened
- **R** = Rare
- **C** = Candidate for listing

**Other Status Codes**

*Plants: California Native Plant Society Inventory Lists*

- **List 1A** = Presumed extinct
- **List 1B** = Plants rare in California and elsewhere
- **List 2** = Plants rare in California but more common elsewhere
- **List 3** = Plants about which more information is needed - a review list
- **List 4** = Plants with limited distributions - a watch list
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:

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<th>CSC</th>
<th>= California Department of Fish and Game &quot;Species of Special Concern&quot;</th>
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<td>*</td>
<td>= Taxa listed with an asterisk fall into one or more of the following categories:</td>
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<td>• Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines.</td>
</tr>
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<td>• Taxa that are biologically rare, very restricted in distribution, or declining throughout their range.</td>
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<tr>
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<td>• 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.</td>
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<tr>
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<td>• Taxa closely associated with habitat that is declining in California (e.g. wetlands, riparian, old growth forest, desert aquatic systems, native grasslands.)</td>
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| FSS  | = Bureau of Land Management and U.S. Forest "Sensitive Species" |
| BL   | = Audubon Society Blue List of birds of special concern |
APPENDIX D

COMMON, POTENTIAL AND OBSERVED
PLANT AND WILDLIFE SPECIES IN THE
SOUTHEAST SANTA ROSA PLAN AREA
### APPENDIX D

**COMMON, POTENTIAL AND OBSERVED PLANT AND WILDLIFE SPECIES IN THE SOUTH EAST SANTA ROSA PLAN AREA SONOMA COUNTY, CALIFORNIA**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
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<tr>
<td><strong>PLANTS</strong></td>
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<tr>
<td><strong>FERNS</strong></td>
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<td>CONIFEROXYTA</td>
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<td>Pine Family</td>
<td>Pinaceae</td>
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<tr>
<td>Douglas Fir</td>
<td><em>Pseudotsuga menziesii</em></td>
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</table>
FLOWERING PLANTS

Dicotyledons

Sumac or Cashew Family
Poison-oak

Carrot Family
Bur-chervil
Poison Hemlock
Lovage
Sweet Fennel
Purple Sanicle
Pacific Sanicle, Gambelweed

Dogbane Family
Periwinkle

Sunflower Family
Yarrow
Blow-wives
Chamomile
Agoseris
California Mugwort
Coyote Brush
Italian-thistle
Purple Star-thistle
Yellow Star-thistle
Bull Thistle
Horseweed
Philadelphia Daisy
Filago
Cudweed
Smooth Cat's-ear
Tidy Tips
Pineapple Weed
Slender Cottonweed
Bristly Ox-tongue
Woolly Marbles
Groundsel
Common Groundsel
Soliva
Spiny Sow-thistle
Common Sow-thistle
Salsify
Smooth Mules-ears

ANTHROPHYTA

Anacardiaceae
Toxicodendron diversilobum

Apiaceae
Anthriscus scandinica
Conium maculatum
Ligusticum sp.
Foeniculum vulgare
Sanicula bipinnatifida
Sanicula crassicaulis

Apocynaceae
Vinca major

Asteraceae
Achillea millefolium
Achyrrachaena mollis
Anthemis sp.
Agoseris sp.
Artemisia douglasiana
Baccharis pilularis var. consanguinea
Carduus pychocephalus
Centaurea calcitrapa
Centaurea solstitialis
Cirsium vulgare
Conyza sp.
Erigeron philadelphicus
Filago sp.
Gnaphalium sp.
Hypochoeris glabrata
Layia sp.
Matricaria matricarioides
Micropus californicus
Picris echioides
Psilochorus sp.
Senecio sp.
Senecio vulgaris
Soliva sessilis
Sonchus asper
Sonchus oleraceus
Tragopogon porrifolius
Wyethia glabra

92245
D-2
Borage Family
Fiddleneck
Popcorn Flower

Mustard Family
Summer Mustard
Mustard
Shepherd's Purse
Shining Pepper Grass
Pepper Grass
Charlock
Wild Radish

Honeysuckle Family
Snowberry

Pink Family
Mouse-ear Chickweed
Windmill Pink

Morning Glory Family
Field Bindweed

Teasel Family
Teasel

Heath Family
Madrone

Legume Family
French Broom
Hill Lotus
Lotus
Bicolorred Lupine
Lupine
Bur Clover
Sack Clover
Rose Clover
Tomcat Clover
Vetch

Boraginaceae
Amsinckia sp.
Plagiobothrys nothofulvus

Brassicaceae
Brassica geniculata
Brassica sp.
Capsella bursa-pastoris
Lepidium nitidum
Lepidium sp.
Raphanus raphanistrum
Raphanus sativus

Caprifoliaceae
Symphoricarpus rivularis

Caryophyllaceae
Cerastium glomeratum
Silene gallica

Convolvulaceae
Convolvulus arvensis

Dipsacaceae
Dipsacus sp.

Ericaceae
Arbutus menziesii

Fabaceae
Cytisus monspessulanus
Lotus micranthus
Lotus sp.
Lupinus bicolor
Lupinus sp.
Medicago polymorpha
Trifolium sp.
Trifolium hirtum
Trifolium tridentatum
Vicia sp.
Appendix D

Oak Family
Coast Live Oak
Black Oak
Valley Oak

Geranium Family
Red-stem Filaree
White-stem Filaree
Cut-leaved Geranium
Dove-leaved Geranium

Waterleaf Family
Shade-loving Nemophila

Buckeye Family
California Buckeye

Walnut Family
California Black Walnut

Mint Family
Mint
Hedge-nettle

Laurel Family
California Bay Laurel

Mallow Family
Cheese Weed

Myrtle Family
Blue Gum

Olive Family
Oregon Ash
Common Olive

Evening Primrose Family
Panicled Willow-herb

Fagaceae
Quercus agrifolia
Quercus kelloggii
Quercus lobata

Geraniaceae
Erodium cicutarium
Erodium moschatum
Geranium dissectum
Geranium molle

Hydrophyllaceae
Nemophila heterophylla

Hippocastanaceae
Aesculus californica

Juglandaceae
Juglans hindsii

Lamiaceae
Mentha sp.
Stachys sp.

Lauraceae
Umbellularia californica

Malvaceae
Malva sp.

Myrtaceae
Eucalyptus globulus

Oleaceae
Fraxinus latifolia
Olea europaea

Onagraceae
Epilobium paniculatum
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<td>Portulacaceae</td>
<td><em>Claytonia perfoliata ssp. perfoliata</em></td>
</tr>
<tr>
<td>Primrose Family</td>
<td>Primulaceae</td>
<td><em>Anagallis arvensis</em></td>
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<td></td>
<td></td>
<td><em>Dodecatheon hendersonii</em></td>
</tr>
<tr>
<td>Buttercup Family</td>
<td>Ranunculaceae</td>
<td><em>Ranunculus californicus</em></td>
</tr>
<tr>
<td>Rose Family</td>
<td>Rosaceae</td>
<td><em>Aphanes occidentalis</em></td>
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<td></td>
<td></td>
<td><em>Cotoneaster sp.</em></td>
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<td></td>
<td></td>
<td><em>Fragaria californica</em></td>
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<td></td>
<td></td>
<td><em>Heteromeles arbutifolia</em></td>
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<td></td>
<td></td>
<td><em>Malus sylvestris</em></td>
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<tr>
<td></td>
<td></td>
<td><em>Physocarpus capitatus</em></td>
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<td></td>
<td><em>Prunus amygdalus</em></td>
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<td></td>
<td></td>
<td><em>Pyracantha sp.</em></td>
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<tr>
<td></td>
<td></td>
<td><em>Rosa gymnocarpa</em></td>
</tr>
</tbody>
</table>
California Rose  
Himalaya Berry  

Rosa californicus  
Rubus procerus  

Madder Family  
Bedstraw  
Bedstraw  
Climbing Bedstraw  

Rubiaceae  
Galium aparinae  
Galium sp.  
Galium porrigens  

Willow Family  
Sandbar Willow  
Arroyo Willow  

Salicaceae  
Salix hindsiana var. hindsiana  
S. lasiolepis  

Saxifrage Family  
Woodland Star  

Saxifragaceae  
Lithophragma affinis  

Figwort Family  
Bellardia  
Common Monkeyflower  
Valley Tassels, Coyote Tail  
Yellow Parenticellia  
Speedwell  

Scrophulariaceae  
Bellardia trixago  
Mimulus guttatus  
Orthocarpus attenuatus  
Parenticellia viscosa  
Veronica sp.  

Nightshade Family  
Nightshade  

Solanaceae  
Solanum sp.  

Monocotyledons  
Rush Family  
Spikerush  
Rush  
Toad Rush  
Iris-leaved Rush  
Rushes  
Wood-rush  

Juncaceae  
Eleocharis sp.  
Juncus balticus  
Juncus bufonius  
Juncus xiphioides  
Juncus spp.  
Luzula subsessilis  

Sedge Family  
Carex  
Umbrella Sedge  

Cyperaceae  
Carex sp.  
Cyperus esculentus
Grass Family

Slender Wild Oats
Little Rattlesnake Grass
California Brome
Ripgut Brome
Soft Chess
Pampas Grass
Bermuda Grass
Hedgehog Dogtail Grass
California Oatgrass
Blue Wildrye
Creeping Wildrye
Fescue
Meadow Barley
Alkali Barley
Farmers Foxtail, Hare Barley
Italian Rye grass
California Beardgrass, Semaphore Grass
Annual Bluegrass
Pine Bluegrass
Purple Needlegrass
Annual Fescue

Poaceae

Avena barbata
Briza minor
Bromus carinatus
B. diandrus
B. mollis
Cortaderia sp.
Cynodon dactylon
Cynosurus echinatus
Danthonia californica
Elymus glaucus
E. triticiodes
Festuca sp. (perennial)
Hordeum brachyantherum
H. hystricx
H. leporinum
Lolium multiflorum
Pleurospogon californicus
Poa annua
Poa scabrella
Stipa pulchra
Vulpia sp.

Lily Family

Soap Plant
Blue Dicks
White Brodiaea

Iris Family

Blue-eyed Grass

Cattail Family

Cattail

TOTAL 155

MAMMALS

Opossum
Ornate Shrew
Vagrant Shrew
Trowbridge's Shrew
Broad-footed Mole
California Myotis
Yuma Myotis

Didelphis marsupialis
Sorex ornatus
S. vagrans
S. trobridgii
Scapanus latamanus
Myotis californicus
M. yumahensis
Appendix D

Long-eared Myotis
Fringed Myotis
Western Pipistrelle
Big Brown Bat
Red Bat
Hoary Bat
Townsend's Big-eared Bat
Pallid Bat
Brazilian Free-tailed Bat
Western Mastiff Bat
Raccoon
Ringtail
Bobcat
Feral House Cat
Gray Fox
Red Fox
Coyote
Long-tailed Weasel
Mink
Badger
Striped Skunk
Spotted Skunk
California Ground Squirrel
Sonoma Chipmunk
Western Gray Squirrel
Botta's Pocket Gopher
California Kangaroo Rat
Western Harvest Mouse
Salt-marsh Harvest Mouse
Deer Mouse
Pinon Mouse
Dusky-footed Wood Rat
California Vole
Muskrat
Porcupine
Norway Rat
Black Rat
House Mouse
Blacktail Jackrabbit
Brush Rabbit
Mule Deer
TOTAL

REPTILES AND AMPHIBIANS

California Tiger Salamander
Pacific Giant Salamander
Rough-skinned Newt
California Newt

M. evotis
M. thysanodes
Pipistrellus hesperus
Eptesicus fuscus
Lasiurus borealis
L. cinereus
Plecotus townsendii
Antrozoa pallidus
Tadarida brasiliensis
Eumops perotis

Procyn lotor
Bassariscus astutus
Lynx rufus

Felis domesticus

Urocyon cinereogenteus
Vulpes vulpes

Canis latrans

Mustela frenata
M. vison
Taxidea taxus

Mephitis mephitis
Spilogale putoria

Spermophilus beecheyi
Tamias sonomae

Sciurus griseus

Thomomys bottae
Dipodomys californicus
Reithrodontomyys megalotis
R. raviventris raviventris

Peromyscus maniculatus
P. truei

Neotoma fuscipes

Microtus californicus
Onatra zibethicus
Erithizon dorsatum
Rattus norvegicus
R. rattus
Mus musculus

Lepus californicus
Sylvilagus bachmani

Odocoileus hemionus

Ambystoma tigrinum californiense
Dicamptodon ensatus
Taricha granulosa
T. torosa
Appendix D

Ensatina
California Slender Salamander
Arboreal Salamander
Western Toad
Pacific Treefrog
Red-legged Frog
Foothill Yellow-legged Frog
Bullfrog
Western Pond Turtle
Western Fence Lizard
Coast Horned Lizard
Western Skink
Southern Alligator Lizard
Northern Alligator Lizard
Rubber Boa
Ringneck Snake
Sharp-tailed Snake
Racer
Striped Racer
Coachwip
Pacific Gopher Snake
Common Kingsnake
Western Terrestrial Garter Snake
Western Aquatic Garter Snake
Common Garter Snake
Night Snake
Western Rattlesnake
TOTAL

BIRDS

Great Blue Heron
Green-backed Heron
Black-crowned Night-Heron
American Egret
Snowy Egret
Canada Goose
Mallard
Turkey Vulture
Black Shouldered Kite
Cooper’s Hawk
Sharp-shinned Hawk
Northern Harrier
Rough-legged Hawk (w)
Ferruginous Hawk (w)
Red-tailed Hawk
Red-shouldered Hawk
Swainson’s Hawk
Golden Eagle

+ Ensatina eschscholtzi xanthoptica
+ Batrachoseps attenuatus
  Aneides lugubris
  Bufo boreas
+ Hyla regilla
  Rana aurora
  R. boyli
  R. catesbeiana
  Clemmys marmorata marmorata
+ Sceloporus occidentalis
  Phrynosoma coronatum
  Eumeces skiltonianus
+ Gerrhonotus multicaudatus
  G. coerulescens
  Charina bottae
  Diadophis punctatus
  Contia tenuis
  Coluber constrictor
  Masticophis lateralis
  M. flagellum
  Pituophis melanoleucus
  Lampropeltis getulus
  Thamnophis elegans terrestris
  T. couchii aquaticus
  T. sirota
  Hypsiglena torquata
  Crotaulus viridis

Ardea herodias
Butorides striatus
Nyctanassa violacea
Casmerodius albus
Egreta thula
Branta canadensis
Anas platyrhynchos
+ Cathartes aura
+ Elanus leucurus
  Accipiter cooperi
+ A. striatus
  Circus cyaneus
  Buteo lagopus
  B. regalis
+ B. jamaicensis
+ B. lineatus
  B. swainsoni
  Aquila chrysaetos

92245
D-9
Appendix D

Bald Eagle (w)  
American Kestrel  
Merlin (w)  
American Peregrine Falcon  
Prairie Falcon (w)  
California Quail  
American Coot  
California Gull  
Ring-billed Gull  
Mourning Dove  
Band-tailed Pigeon  
Rock Dove  
Killdeer  
Western Screech Owl  
Great Horned Owl  
Northern Pigmy Owl  
Barn Owl  
Burrowing Owl  
Long-eared Owl  
Short-eared Owl  
Northern Saw-whet Owl  
Poor-will (s)  
White-throated Swift  
Vaux's swift (s)  
Anna's Hummingbird  
Allen's Hummingbird (s)  
Belted Kingfisher  
Northern Flicker  
Pileated Woodpecker  
Acorn Woodpecker  
Lewis' Woodpecker (w)  
"Red-breasted" Sapsucker (w)  
Nuttall's Woodpecker  
Downy Woodpecker  
Hairy Woodpecker  
Western Kingbird (s)  
Ash-throated Flycatcher (s)  
Black Phoebe  
Say's Phoebe (w)  
Pacific-slope Flycatcher (s)  
Western Wood Pewee (s)  
Olive-sided Flycatcher (s)  
Horned Lark  
Barn Swallow (s)  
Cliff Swallow (s)  
Violet-green Swallow  
Tree Swallow  
Northern Rough-winged Swallow (s)  
Purple Martin (s)  
Scrub Jay  

Haliaeetus leucocephalus  
+ Falco sparverius  
F. columbarius  
F. peregrinus anatum  
F. mexicanus  
+ Callipepla californica  
Fulica americana  
Larus californicus  
L. delawarensis  
+ Zenaidura macroura  
Columba fasciata  
+ Columba livia  
+ Charadrius vociferus  
Otus asio  
+ Bubo virginianus  
Glaucidium gnoma  
Tyto alba  
Athene cunicularia  
Asio otus  
A. flammeus  
Aegolius accedicus  
Phalaenoptilus nuchali  
Aeronautes saxatalis  
Chaetura vauxi  
+ Calypte anna  
Selasphorus sasin  
Ceryle alcyon  
+ Colaptes auratus  
Dryocopus pileatus  
+ Melanerpes formicivorus  
* M. lewis  
Sphyrapicus varius daggetti  
+ Piciodes nuchali  
P. pubescens  
P. villosus  
+ Tyrannus verticalis  
Myiarchus cinevascens  
+ Sayornis nigricans  
S. saya  
+ Empidonax difficilis  
Contopus sordidulus  
* Nuttallornis obrealis  
Erephila alpestris  
+ Hirundo rustica  
Petrochelidon pyrrhonota  
+ Tachycineta thalassina  
Iridoprocne bicolor  
+ Stelgidopteryx ruficollis  
Progne subis  
+ Aphelocoma coerulescens
Appendix D

Steller's Jay + Cyanocitta stelleri
American Crow + Corvus brachyrhynchos
Common Raven + C. corax
Chesnut-backed Chickadee Parus rufescens
Common Bushtit + Psaltria par s minimus
Plain titmouse + P. inornatus
White-breasted Nuthatch + Sitta carolinensis
Red-breasted Nuthatch (w) S. canadensis
Brown Creeper Certhia americana
Wrentit Chamaea fasciata
Bewick's Wren + Thryomanes bewickii
House Wren Trogodytes aedon
Winter Wren (w) T. troglodytes
Marsh Wren Cistothorus palustris
Rock Wren Salpinctes obsoletus
Northern Mockingbird Sittus polyglottos
California Thrasher Toxostoma redivivum
American Robin + Turdus migratorius
Varied Thrush (w) Ixoreus naevius
Hermit Thrush (w) Catharus guttata
Swainson's Thrush (s) C. ustulatus
Western Bluebird + Sturnus vulgaris
Blue-grey Gnatcatcher (s) Vireo huttoni
Ruby-crowned Kinglet (w) V. solitarius
Golden-crowned Kinglet (w) V. gilvus
American Pipit (w) * Vermivora celata
Cedar Waxwing (w) Dendroica coronata
Loggerhead Shrike D. petechia
European Starling D. townsendi
Hutton's Vireo D. occidentalis
Solitary Vireo (s) Geothlypis trichas
Warbling Vireo (s) Icteria virens
Orange-crowned Warbler Wilsonia pusilla
Yellow-rumped Warbler Oporornis tolmiei
Yellow Warbler (s) Geothlypis trichas
Townsend's Warbler (w) G. t. sinuosa
Hermit Warbler (s) Icteria virens
Salt Marsh Yellowthroat Wilsonia pusilla
Yellow-breasted Chat (s) * Passer Domesticus
Wilson's Warbler (s) Xanthocephalus xanthocephalus
Macgillivray's Warbler (s) + Agelaius phoeniceus
Common Yellowthroat A. tricolor
Saltmarsh Yellowthroat + Euphagus cyanocephalus
Yellow-breasted Chat (s)
<table>
<thead>
<tr>
<th>Bird Species</th>
<th>Common Name</th>
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<tbody>
<tr>
<td>Brown-headed Cowbird</td>
<td>Molothrus ater</td>
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<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>
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<tr>
<td>Western Tanager (s)</td>
<td>Piranga ludoviciana</td>
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<tr>
<td>Black-headed Grossbeak (s)</td>
<td>Pheucticus melanocephalus</td>
</tr>
<tr>
<td>Lazuli Bunting (s)</td>
<td>Passerina amoena</td>
</tr>
<tr>
<td>Evening Grossbeak (w)</td>
<td>Coccothraustes verspertinus</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>Brown Towhee</td>
<td>+ P. fuscus</td>
</tr>
<tr>
<td>Savannah Sparrow</td>
<td>Passerculus sandwichensis</td>
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<tr>
<td>Vesper Sparrow</td>
<td>Pooecetes eramneus</td>
</tr>
<tr>
<td>Lark Sparrow</td>
<td>+ Chondestes grammacus</td>
</tr>
<tr>
<td>Rufous-crowned Sparrow</td>
<td>Aimophila ruficeps</td>
</tr>
<tr>
<td>Grasshopper Sparrow (s)</td>
<td>Ammodramus savannarum</td>
</tr>
<tr>
<td>Sage Sparrow</td>
<td>Amphipiska belli</td>
</tr>
<tr>
<td>Dark-eyed Junco</td>
<td>Junco hyemalis</td>
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<tr>
<td>Chipping Sparrow (s)</td>
<td>Spizella passerina</td>
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<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>
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<tr>
<td>Song Sparrow</td>
<td>M. melodia</td>
</tr>
<tr>
<td>San Pablo Song Sparrow</td>
<td>M. m. samulis</td>
</tr>
</tbody>
</table>

TOTAL 47

All above listed plant species recorded during EIP field surveys April 13 and May 5, 1993.
Wildlife species observed during EIP field surveys April 5-6, and June 7, 1993 (+) or reliably reported (*).

(w) = Winter range only
(s) = Summer range only

Sources:


APPENDIX E

AIR QUALITY BACKGROUND INFORMATION
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 E-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


<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Adverse Affects</th>
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</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>Eye irritation.</td>
</tr>
<tr>
<td></td>
<td>Respiratory function impairment.</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin.</td>
</tr>
<tr>
<td></td>
<td>Aggravation of cardiovascular disease.</td>
</tr>
<tr>
<td></td>
<td>Impairment of central nervous system function.</td>
</tr>
<tr>
<td></td>
<td>Fatigue, headache, confusion, dizziness.</td>
</tr>
<tr>
<td></td>
<td>Can be fatal in the case of very high concentrations in enclosed places.</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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Altered lung function in children.</td>
</tr>
<tr>
<td></td>
<td>With SO2, may produce acute illness.</td>
</tr>
<tr>
<td>PM10</td>
<td>Particulate matter 10 microns or less in size (PM10) which may be inhaled and possibly lodge in and/or irritate the lungs.</td>
</tr>
<tr>
<td>Sulfates</td>
<td>Decreased lung function.</td>
</tr>
<tr>
<td></td>
<td>Aggravation of asthmatic symptoms, cardiopulmonary disease.</td>
</tr>
<tr>
<td>Lead</td>
<td>Impairment of blood function and nerve construction.</td>
</tr>
<tr>
<td></td>
<td>Behavioral and learning problems in children.</td>
</tr>
<tr>
<td>Hydrogen Sulfide1</td>
<td>Impairment of the body to utilize oxygen.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Possibly other cancers.</td>
</tr>
<tr>
<td></td>
<td>Possible effects on human reproduction.</td>
</tr>
</tbody>
</table>

---

1 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.
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 E-2. This station is the closest air quality monitoring station to all projects in the Southeast Area Plan. The data in Table E-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.

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
TABLE E-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>OZONE:</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>CARBON MONOXIDE:</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></td>
<td>5.1</td>
<td>6.1*</td>
<td>5.1</td>
<td>4.0</td>
</tr>
<tr>
<td>2nd Highest 8-hour</td>
<td></td>
<td>4.9</td>
<td>5.0*</td>
<td>4.3</td>
<td>3.8</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>NITROGEN DIOXIDE:</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></td>
<td>0.016</td>
<td>0.015*</td>
<td>0.014</td>
<td>0.015*</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>SULFUR DIOXIDE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Not measured at this station)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARTICULATES (PM$_{10}$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Not measured at this station)</td>
<td></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.

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 E-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 NO\textsubscript{x} 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 E-4. The emissions are presented in pounds per hour. To estimate annual emissions multiply by the number of days of construction.
# TABLE E-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>100 cm</td>
</tr>
<tr>
<td>Link Endpoints</td>
<td>0 cm/s (Randall and Ng 1987) for CO</td>
</tr>
<tr>
<td>Stopline Distance</td>
<td>0 cm/s (Assuming at grade)</td>
</tr>
<tr>
<td>Mixing Zone Width</td>
<td>0.5 ft (Caltrans 1993)</td>
</tr>
<tr>
<td>Deceleration Time to 0 mph</td>
<td>500 m from the intersection (Benson 1984)</td>
</tr>
<tr>
<td>Acceleration Time from 0 mph</td>
<td>500 m - [(Cross-street Lanes + 1) * 4 m] (Caltrans 1988)</td>
</tr>
<tr>
<td>Speed</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Emission Factor</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Idle Emission Factor</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Mixing Width Right &amp; Left</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Cycle Length</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Vehicle Idle time at Stopline</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Vehicle Idle time at End</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Wind Direction</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Wind Speed</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Atmospheric Stability</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Mixing Height</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Sigma Theta</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Ambient Concentration</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Rollback Factors</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>January Morning Temperature</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Link Type</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Percent Hot Starts</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Percent Cold Starts</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
<tr>
<td>Vehicle Mix</td>
<td>0.5 m/s (Caltrans 1993)</td>
</tr>
</tbody>
</table>

### SOURCE: Various sources see reference.
## TABLE E-4

EMISSION FACTORS FOR HEAVY-DUTY DIESEL AND GASOLINE POWERED CONSTRUCTION EQUIPMENT (POUNDS/HOUR)

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Reactive Organic Compounds (ROC)</th>
<th>Nitrogen Oxides (NOₓ)</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>
</tr>
<tr>
<td>Motor Grader</td>
<td>0.04</td>
<td>0.71</td>
</tr>
<tr>
<td>Wheeled Loader</td>
<td>0.25</td>
<td>1.89</td>
</tr>
<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>
</tr>
<tr>
<td><strong>GASOLINE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheeled Tractor</td>
<td>0.50</td>
<td>0.43</td>
</tr>
<tr>
<td>Motor Grader</td>
<td>0.56</td>
<td>0.32</td>
</tr>
<tr>
<td>Wheeled Loader</td>
<td>0.70</td>
<td>0.52</td>
</tr>
<tr>
<td>Roller</td>
<td>0.79</td>
<td>0.36</td>
</tr>
<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.

Benson, Paul, 1984. CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways. Office of Transportation Laboratory, Sacramento, CA, November.


APPENDIX F

(RESERVED SPACE FOR FINAL EIR)
APPENDIX G

COMPARISON OF FUTURE PLAN
INTERSECTION LEVELS OF SERVICE
WITH AND WITHOUT FARMERS LANE EXTENSION
Appendix
Comparison of Future Plan Intersection Levels of Service for Farmers Lane Extension Alternatives
Table shows mitigated level of service, letter and (average delay/vehicle in seconds)

<table>
<thead>
<tr>
<th>INTERSECTION</th>
<th>with F.L. Extension</th>
<th>without F.L. Extension</th>
<th>Hybrid No F.L. Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hearn Avenue Overcrossing/ Santa Rosa Avenue</td>
<td>C (24)</td>
<td>C (20)</td>
<td>C (21)</td>
</tr>
<tr>
<td>2. Aston Avenue/ Petaluma Hill Road</td>
<td>C (20)</td>
<td>D (35)</td>
<td>E (49)</td>
</tr>
<tr>
<td>3. Petaluma Hill Road/ Santa Rosa Avenue</td>
<td>C (17)</td>
<td>C (24)</td>
<td>C (15)</td>
</tr>
<tr>
<td>4. Colgan Avenue/ Santa Rosa Avenue</td>
<td>B (14)</td>
<td>C (19)</td>
<td>C (19)</td>
</tr>
<tr>
<td>5. Yolanda Avenue/ Petaluma Hill Rd.</td>
<td>E (50)</td>
<td>C (21)</td>
<td>C (23)</td>
</tr>
<tr>
<td>6. Yolanda Avenue/ Santa Rosa Avenue</td>
<td>E (49)</td>
<td>F (65)</td>
<td>E (40)</td>
</tr>
<tr>
<td>7. Todd Road/ Santa Rosa Avenue</td>
<td>E (46)</td>
<td>E (42)</td>
<td>D (34)</td>
</tr>
<tr>
<td>9. Gordon Lane/ Bennett Valley Rd.</td>
<td>B (5)</td>
<td>F (&gt; 100)</td>
<td>A (4)</td>
</tr>
<tr>
<td>14. Kawana Springs Rd./ Santa Rosa Avenue</td>
<td>B (6)</td>
<td>B (13)</td>
<td>B (8)</td>
</tr>
</tbody>
</table>

NOTES: All delays are calculated using the 1985 Highway Capacity Manual, signalized operations method, and are rounded to the nearest second. Delays are for stopped time only, i.e., they do not include delay associated with braking for a red light, or accelerating from a stop. Mitigations used in comparing intersections, including signal cycle length, are the same for both alternatives portrayed above.

For explanation of the level of services, see Table 3.1.4-1. Differences of less than three seconds are not likely to be noticeable to the majority of drivers.
Appendix

Turn Lane Lengths Required for Mitigations

The following provides the length of turn lanes (excluding taper) required at 25 feet per vehicle

1. Santa Rosa Avenue/Hearn Avenue Overcrossing
   NBL on SR. Avenue (300')
   EBL on Hearn Avenue (350')

5. Petaluma Hill Road/Yolanda Avenue
   SBR on Petaluma Hill Rd. (50')
   EBR on Yolanda (600')
   NBL on Petaluma Hill Rd. (425')
   NBR on Petaluma Hill Rd. (625')
   WBL on Farmers Lane Extension (375')

6. Santa Rosa Avenue/Yolanda Avenue
   WBL on Yolanda (350')

10. Petaluma Hill Road/Kawana Springs Road
    NBL on Petaluma Hill Rd. (60')

11. Farmers Lane/Bennett Valley Road
    NBL on Farmers Lane Extension (75')
    NBR on Farmers Lane Extension (400')

13. Petaluma Hill Road/Colgan Avenue
    EBL on Colgan Avenue (275')
CONCEPTUAL PHOTO MONTAGE MASSING PREPARATION

To illustrate visual conditions after development of the proposed projects, a series of conceptual photomontage massing studies has been prepared for the EIR. The conceptual photomontage massing studies consist of photographs taken of Area Plan project sites with project development superimposed on the photographs. Both before and after conditions are shown.

The locations of the photographs and conceptual photomontages are shown on Figure I-1, Photomontage Massing Study View Index Map, and are described as follows:

View 1 is from Kawana Springs Road at Petaluma Hill Road looking east into Project #8.

View 2 is from Yolanda Avenue at Petaluma Hill Road looking east into Project #10.

View 3 is from the southerly end of the proposed extension of Eaton Avenue, looking southeast into project #8 at the Town Center site.

View 4 is from Linwood Avenue, looking north into project #11.

Because detailed site plans for the proposed projects were not available for the conceptual photomontage massing studies, assumptions regarding project development were necessary prior to preparing the massing studies. For example, while it is known that a Town Center is proposed for Project #8, building location, configuration and height was not known. Accordingly, certain conclusions were made regarding site development potential consistent with the proposed project
CONCEPTUAL PHOTOMONTAGE MASSING STUDIES
VIEW INDEX MAP

FIGURE H-1

LEGEND

- Photomontage Location and Direction of View - See Appendix H
- Urban Boundary
- Area Plan Boundary
- City Limit
- Project Proposals Submitted

Approximate Location of Proposed Farmers Lane Extension

Santa Rosa Avenue
Kawana Springs Road
Yolanda Avenue
Peabody Hill Road
Sonoma County Fairgrounds
Linwood Avenue

NOT TO SCALE
Figure 1-2, Figure 1-3 and Figure 1-4 provide thumbnail sketches of building development assumptions for Views #1, #2 and #3, described as follows:

View #1, Project #8: View #1 assumes the development of multi-family housing north of Kawana Springs Road with tennis courts as shown on the proposed development plan for Project #8. A two-story configuration is depicted for the multi-family housing on the 7.7 acre parcel.

View #2, Project #10: View #2 assumes the development of about 110,000 square feet of commercial space north of Farmers Lane Extension on an approximate eight acre site. For simulation purposes, a second floor of residential space is provided over the commercial space to define two-story buildings with commercial and multi-family space. Parcel "B" is proposed to be two-story multifamily housing as indicated on the proposed development plan. Single-family residential units are located consistent with the lotting pattern shown on the proposed development plan. Two-story residential units are located on the smaller lots to maintain roughly equal interior dwelling unit space with single-story units, which located on the larger lots.

View #3, Project #8: View #3 depicts the Town Center site buildings (white lines) consisting of about 10,000 to 15,000 square feet of commercial space on the first floor with multi-family residential use on the second floor. The Town Center site photomontage is located as shown on the proposed development plan.

View #4, Project #11 and Farmers Lane Extension: View #4 shows single-family structures as illustrated on the proposed development plan for Project #11, and the Farmers Lane Extension project consisting of four lanes.

Viewpoint selection was based on the need to indicate how major entries to the Southeast Area would appear at buildout. Thus, two locations were selected along Petaluma Hill Road (View #1, Project #8 and View #2, Project #10). An objective was to include a portion of Farmers Lane Extension in at least one entry location (View #2, Project #10).
VIEW #1: PLAN MAP
PROJECT #8 ENTRANCE, AT PETALUMA HILL RD.
ASSUMED DESIGN FOR SIMULATION PURPOSES - MULTIFAMILY HOUSING

FIGURE H-2

Multifamily Housing (Condominiums), 2 stories

Proposed Tennis Courts (by applicant)

Existing Vegetation

SOURCE: SQUARE ONE FILM + VIDEO

FEET
0 150 300
VIEW #2: PLAN MAP
PROJECT #10 ENTRANCE, AT PETALUMA HILL RD.
ASSUMED DESIGN FOR SIMULATION PURPOSES
COMMERCIAL/MULTIFAMILY HOUSING/SINGLE FAMILY UNITS

FIGURE H-3

Parcel "A"
Commercial / Multifamily
Housing 2 stories

Parcel "B"
Moderate Cost Multifamily Units
2 stories

Proposed Housing
1 & 2-story
Single Family Units

Petaluma Hill Road
Farmers Lane Extension

SOURCE: SQUARE ONE FILM + VIDEO
FEET | 0 150 300
It was also desired to indicate how the Farmers Lane Extension project would appear in the rolling terrain toward interior portions of the study area (View #3, Project #11). In addition, other aspects of site development were felt appropriate to illustrate including potential tree removal, water tank visibility, hillside grading and visual access to residential areas.

OBJECTIVE AND PROCESS

The objective of the massing study of proposed land uses was to determine to what extent those uses would be visible from four key view locations described above.

The conceptual photomontage massing studies were prepared using computer techniques. First, the available data consisting of project property lines, site contours, existing roads and major tree specimens were digitized as computer input. No data was available for proposed grading and landscaping. Thus design assumptions that were critical for simulation purposes but not reflected in the project plans were ascertained as explained above and through consultations with City staff. Proposed single-family and multi-family/commercial land uses, water tanks and roads were then digitized to the extent these features might be visible in the respective simulated views.

The digitized data was then scaled so as to align with the scanned photographic images. The alignments were achieved through field control points (landmarks of trees and terrain), and by superimposing and aligning computer-generated hill configurations over the respective photographic images.

Once the alignments were achieved, it was then determined which of the proposed land uses were visible from the respective vantage points, given the existing topography, existing land uses and vegetation. The visible parts of the respective projects are shown as solid shaded masses and superimposed in diagrammatic fashion over the photographic images.

RESULTS OF ANALYSIS

As noted previously, each photomontage massing study illustrates conditions as they are today, and conditions of projected buildout of the proposed projects with Farmers Lane Extension. Conditions of the setting shown in the photographs without the photomontage massing are as described in Section 3.1.5, Visual Quality and Community Character.
View #1, Project #8:

Figure I-5 illustrates proposed two-story multi-family residential units and tennis courts north of Kawana Springs Road. The alignment of Kawana Springs Road is proposed to be oriented to the northeast into the interior of Project #8, with a short southerly connection to the existing alignment of Kawana Springs Road about 400 feet east of its current intersection with Petaluma Hill Road (see EIR Figure 2.2-16). Figure I-5 indicates that existing vegetation along Colgan Creek would be retained, and would thus screen residential development of Project #8 further east on the project site at Viewpoint #1.

Hillside residential development and proposed water tanks near the east margin of the Plan area would not be seen from Viewpoint #1 because of the existing vegetation.

View #2, Project #10:

Figure I-6 illustrates proposed two-story commercial and multi-family residential development immediately north of the Farmers Lane Extension project. One and two-story single family residences are shown east of the commercial area. The photomontage massing study includes grading of the existing knoll east of the commercial area (approximately the top 30 feet of the knoll are removed for the study). Because of the existing oak trees near the base of the knoll, residential development of Project #10 is substantially screened from view. However, construction of the Community Center (commercial and residential development), would significantly alter visual conditions of the area. The semi-rural to rural setting would be converted to urban development (see the discussion in Section 3.1.5, Visual Quality and Community Character).

View #3, Project #8:

Figure I-7 illustrates proposed two-story commercial and multi-family residential development at the Town Center site of Project #8. The illustrated concept for development stresses the saving of existing oak trees. The Town Center buildings are shown in outline (white lines), reflecting the design format as shown on Figure I-7. The foreground area between the oak tree shown in the photomontage and viewer would be expected to be occupied by Medium Density residential housing or parking area and vehicles. Individual single-family homes of the proposed project are shown in the background.
An existing knoll east of the Town Center site would be lowered about 25 feet, according to spot elevations provided on the proposed development plan. This is reflected in the photomontage, but would not significantly alter view conditions when seen from Viewpoint #3.

A 700,000 gallon water tank 61 feet in diameter and 32 feet high as shown at a 400-foot elevation alternative location would be visible from Viewpoint #3 (see left hand portion of photomontage). Other proposed water tanks further north would be screened from view from most locations because of existing vegetation throughout the Plan area.

This photomontage massing study would tend to understate the extent of development to be seen because the photomontage does not illustrate parking areas or roads. Additionally, as stated previously, the extent of site grading is not known, and with the exception of removing 25 feet from the existing knoll as explained above, potential cuts and fills are not illustrated in the photomontage.

View #4, Project #11 and Farmers Lane Extension:

Figure I-8 illustrates the Farmers Lane Extension project as it would traverse Project #11. The Extension would consist of four lanes with two lanes of traffic in each direction at this location within the Plan area. One and two-story single-family residences of Project #11 are also shown, based on the proposed lotting pattern provided in the development scheme.

 Farmers Lane Extension is shown split vertically and horizontally in the median strip to minimize grading in the sloping terrain. A southbound left-turn lane onto Linwood Avenue is shown in the median. The road gradient is shown at a maximum seven percent at Project Site #11, which conforms to the existing gradient. Conceptual tree plantings are illustrated for possible future landscaping considerations. Consistent with a four lane roadway, the Extension would occupy a significant portion of the field of view to the traveler, which is a typical condition of urban development.