

6.1 INTRODUCTION

State CEQA Guidelines Section 15126.6(a) states that an environmental impact report shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]).

According to the State CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, the State CEQA Guidelines Section 15126.6 states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites." The State CEQA Guidelines also specify that the alternatives discussion should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

State CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include: (1) the nature of the significant impacts of the proposed project; (2) ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. These factors would be unique for each project.

The significant environmental impacts of the project that the alternatives will seek to eliminate or reduce were determined and based upon the findings contained within each technical section evaluated in Sections 4.1 through 4.14 of this DEIR.

6.2 ALTERNATIVES UNDER CONSIDERATION

Five principal alternatives were identified by the County for examination and analysis in this DEIR:

- Alternative A – Existing Plan Alternative
- Alternative B – Plan Update Alternative
- Alternative C – Plan Update Alternative 2
- Alternative D – Resource Preservation Alternative
- Alternative E – Jobs/Housing Balance Alternative

In addition, this DEIR considers a No Project Alternative, in which the proposed General Plan Update would not occur.

Alternatives A through C are described in detail in Section 3.0 (Project Description) and analyzed at an equal level of detail in Sections 4.1 through 4.14 (Setting, Impacts & Mitigation). The use of an equivalent level of detail in analyzing alternatives is not required by CEQA, but was a convenient way to present a variety of policies being considered as part of the General Plan

6.0 PROJECT ALTERNATIVES

Update, and to bracket potential outcomes of a planning process that will not be concluded until public comments are received and the draft General Plan Update is revised and adopted by the Board of Supervisors.

The No Project Alternative and Alternatives D and E are evaluated in this section are evaluated at a lesser level of detail in this section, as provided for by CEQA and the State CEQA Guidelines.

Table 6.0-2 provides a summary comparison of the environmental effects of the alternatives.

These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6. It should be noted that this range of alternatives also captures some potential variations of the proposed General Plan Update that combine components of one alternative with features of another. Variations that would result in impacts falling within the range represented by the alternatives described in this DEIR could be considered for adoption by the Board of Supervisors.

ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR ANALYSIS

A number of alternatives and ideas that could have been considered as components of an alternative were considered during preparation of the Draft EIR but were not selected for in depth analysis. These alternatives and alternative-components are described below, along with reasons they were withdrawn from further consideration.

Off-Site Alternative

Given the nature of the project (adoption of a General Plan Update for the Napa County) it would not be pertinent to address another area outside of the County boundaries. Further, this alternative would not meet the basic project objectives identified in Section 3.0 (Project Description). For these reasons, an off-site alternative is considered infeasible pursuant to State CEQA Guidelines 15126.6(c).

NOP Alternatives

As identified in Section 3.0 (Project Description), the General Plan Steering Committee began development of a range of alternatives intended to bracket possible outcomes of the planning process that was getting started in September 2005. With input from the public, the Board of Supervisors and the Planning Commission, seven alternatives were refined and described in a formal Notice of (EIR) Preparation (NOP) and associated EIR scoping materials. A full description of these alternatives is included in the Scoping Summary Report (**Appendix A**):

- Alternative 1 (Status Quo)
- Alternative 2 (Extension of Existing Plan)
- Alternative 3 (Plan Update)
- Alternative 4 (Plan Update w/Enhanced Affordable Housing & Historic Preservation)
- Alternative 5 (Plan Update w/Enhanced Transportation Focus)
- Alternative 6 (Plan Update w/Enhanced Economic Development Focus)
- Alternative 7 (Plan Update w/Additional Hillside Parcels)

As a result of public and agency responses to the NOP, as well as further input from the Steering Committee, the Planning Commission and Board of Supervisors in January and February of 2006, these initial seven alternatives were further refined into the five principal alternatives considered in this DEIR identified above:

- Alternative A, the Existing Plan Alternative (derived from NOP Alternative 2)
- Alternative B, the Plan Update Alternative (derived from NOP Alternative 3)
- Alternative C, the Plan Update Alternative 2 (derived from NOP Alternative 4 combined with NOP Alternative 6)
- Alternative D, the Resource Preservation Alternative (derived from NOP Alternative 1)
- Alternative E, the Jobs/Housing Balance Alternative (derived from NOP Alternative 5 combined with NOP Alternative 7)

In reducing the alternative options from seven to five, very few ideas were eliminated because they did not appear to be feasible. These ideas are outlined in the section below.

Scoping Ideas

Several other ideas were raised during scoping sessions associated with alternatives for the General Plan Update that were not pursued further. These concepts are identified below as well as reasons why they were not included as an alternative in the DEIR.

- **Napa River Park** – One scoping commenter suggested creating public open space along the Napa River for the length of the valley. This idea was considered infeasible due to the private ownership of property along the river, and the unlikelihood that the County could acquire (through purchase or condemnation) the required parcels. There was also a concern that opening up the entire river frontage to public access could have a detrimental effect on natural resources, resulting in habitat disturbance, erosion and sedimentation, and bank failures. In lieu of this suggestion, Alternatives B and C have been defined to include policies in support of expanded trails and publicly accessible open space, a trail connection from one end of the valley to the other on an alignment to be determined via further study, and increased access to the Napa River at bridge crossings and similar spots that can be effectively monitored. (See the proposed Recreation and Open Space Element and the proposed Conservation Element.).
- **Extending sewer and water infrastructure throughout the Napa Valley floor** – The idea of extending infrastructure throughout the valley floor was included in one of the NOP alternatives, but later determined to be in conflict with the project objectives and the General Plan Update's vision. Specifically, the extension of infrastructure would result in greater growth inducement impacts (and the associated environmental effects of additional growth in Napa Valley) than the alternatives under consideration. However, the consideration of the extension of sewer and wastewater service adjacent to the City of Napa is considered under Alternative E, while Alternatives B and C include the consideration of extending recycled water service to Carneros and Coombsville.
- **Separate Historic Resources Element, Water Element, Energy Element, etc.** – Throughout the scoping process, commenters suggested topics they thought warranted individual attention in separate elements of the General Plan. While certainly feasible, these suggestions were set aside as largely symbolic, and the General Plan Steering Committee focused on substantive content related to each topic, rather than their organization in the document. The proposed General Plan Update associated with Alternatives B and C includes policy provisions for the protection and preservation of

6.0 PROJECT ALTERNATIVES

historic resources in the proposed Community Character Element, and addresses the topics of water and energy in the Conservation Element.

6.3 NO PROJECT ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

Under this alternative, the proposed Napa County General Plan alternatives and the associated land use policy maps, would not be adopted and the existing Napa County General Plan policy document would remain in effect with no changes. (This differs from Alternative A, which would update the existing General Plan, but without substantive policy changes.) The current plan would become increasingly out of date, and the County would risk having its land use authority restricted through legal action until its General Plan is updated.

Land Use Plan and Development Potential

The No Project Alternative would result in development similar to Alternative A, which would result in a housing increase of approximately 2,235 housing units and 10,832 new jobs in the unincorporated County between year 2005 and 2030. New housing would be distributed throughout the County, with the only concentrations likely in already developed areas shown as "urban" on the existing General Plan Land Use Map. The majority of new employment would be concentrated in the Airport Industrial Area, with smaller amounts at the Napa Pipe, Boca, and Pacific Coast sites and at wineries and other uses disbursed throughout the County.

Vineyard and Winery Processing/Operations

The No Project Alternative would allow continued development of vineyards and wineries with no change to existing County regulations or policy controls. While it is difficult to predict how much vineyard development would occur over the 25-year period, the amount has been estimated to be between 10,000 and 12,500 acres based on County staff review of pending applications, available land, and vineyard development trends. Similarly, the current trend in winery development suggests that there could be about 150 new wineries approved over the 25-year period, most of them relatively small (less than 50,000 gallons annual production).

Transportation and Infrastructure

Given current funding limitations, the No Project Alternative does not include improvements to the southern portion of the County (improvement and widening of SR 12 in Jamieson Canyon, construction of a new interchange at SR 12/SR 29/Airport Boulevard and improvements to SR 29 between the City of American Canyon and the City of Napa).

ENVIRONMENTAL ANALYSIS

Given that this alternative would result in the same extent and form of development as Alternative A, the impacts associated with the No Project Alternative would be the same as what has been identified in Sections 4.1 through 4.14 for Alternative A.

6.4 ALTERNATIVE D – RESOURCE PRESERVATION ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

The Resource Preservation Alternative would be the most restrictive of the five principal alternatives considered in this DEIR. The area currently designated as Agricultural Watershed Open Space (AWOS) would be split into two zones – one primarily devoted to agriculture, and one primarily devoted to open space. One dwelling unit per parcel would still be allowed, but minimum parcel sizes could increase, so that little new development would occur and major infrastructure improvements would not be feasible. There would be no changes to the amount of land designated for industrial use. The existing policy provisions of the 1983 General Plan would largely remain, except additional policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current plan (see description below).

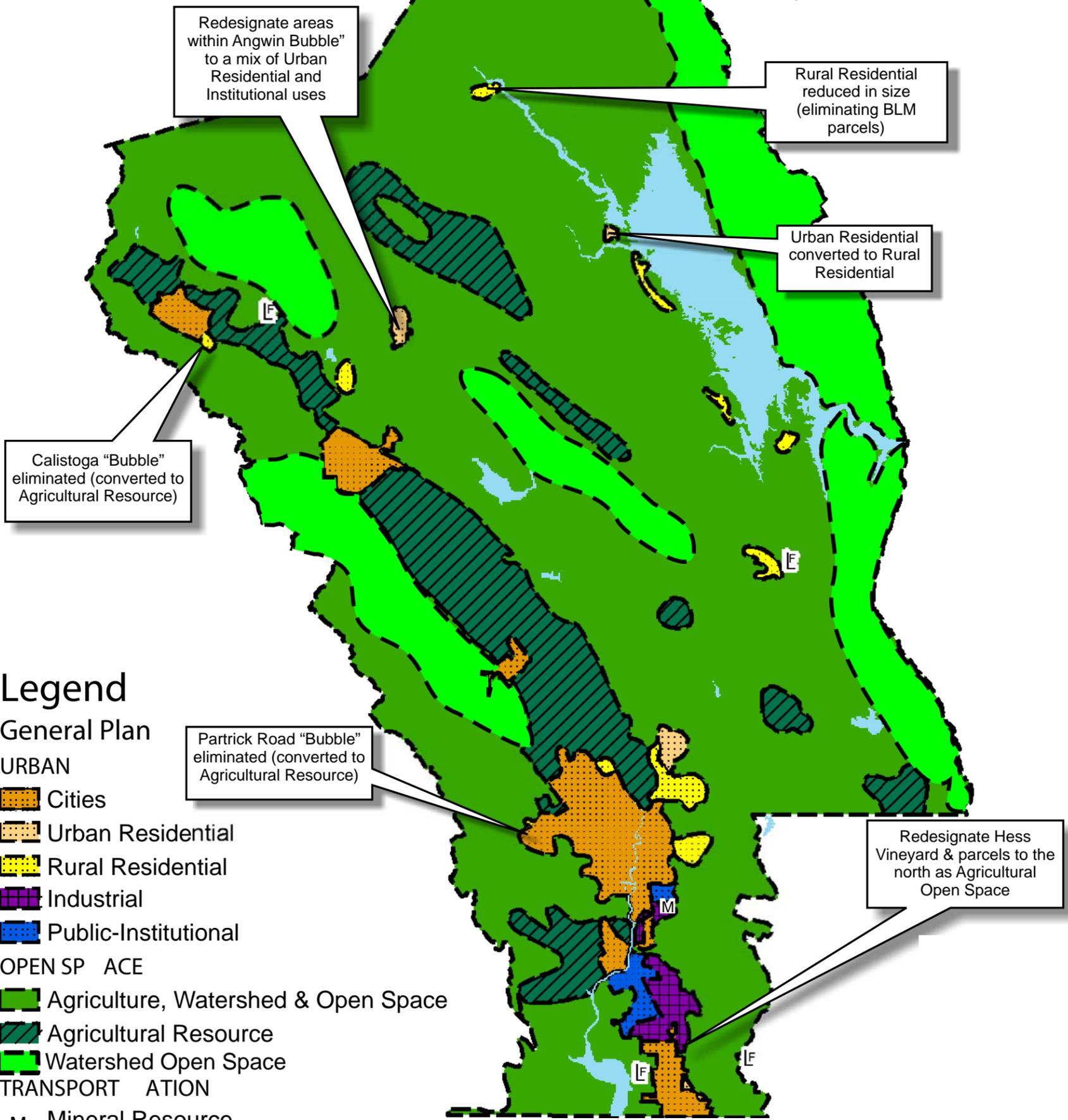
Land Use Plan and Development Potential

As shown in **Figure 6.0-1**, current rural designated areas adjacent to Berryessa Estates, City of Calistoga and the City of Napa would be reduced or eliminated, while urban designated areas in Pope Creek would be re-designated rural residential. Hess Vineyard would remain in vineyard use, but would be re-designated as Agricultural Open Space. Urban designations in the unincorporated community of Angwin would be modified to include a mix of urban residential and institutional uses, but no expansion of the so-called “urban bubble” would occur. There would be no other changes to the land use map. Other agricultural areas would have no additional housing sites as increasing the minimum parcel size would limit further subdivisions. The AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. There would be a continued reliance on cities to meet housing needs requirements. This Alternative would result in an increase of 1,951 units and an increase of 9,713 new jobs between year 2005 and 2030 (see Table VI in the Industrial Land Use Study – Napa County General Plan Update in **Appendix B** for further details on assumed development under this alternative). A Measure J vote would be required for these changes.

6.0 PROJECT ALTERNATIVES

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Updated Plan with one change in policy requiring a vote pursuant to Measure J. No changes in Infrastructure. Changes to the Land Use map as shown.



Legend

General Plan

URBAN

- Cities
- Urban Residential
- Rural Residential
- Industrial
- Public-Institutional

OPEN SPACE

- Agriculture, Watershed & Open Space
- Agricultural Resource
- Watershed Open Space

TRANSPORTATION

- Mineral Resource
- Landfill

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Source: Napa County Planning Department

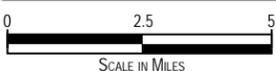


FIGURE 6.0-1
ALTERNATIVE D

Vineyard and Winery Processing/Operations

The minimum parcel size for wineries would increase from 10 to 40 acres. Vineyards would be required to operate or expand with a greater emphasis on habitat preservation. Resulting in fewer than 10,000 acres of new vineyards by 2030 (i.e. less than Alternatives A, B, and C).

Transportation and Infrastructure

This alternative does not include improvements to the southern portion of the County (improvement and widening of SR 12 in Jamieson Canyon, construction of a new interchange at SR 12/SR 29/Airport Boulevard and improvements to SR 29 between the City of American Canyon and the City of Napa).

ENVIRONMENTAL ANALYSIS

The following analysis is based on the significant environmental impacts identified in Sections 4.1 through 4.14

Agriculture

Conversion of Agricultural Lands to Non-Agricultural Uses

Alternative D would result in the least extent conversion of farmlands of concern under CEQA (Prime Farmland, Unique Farmland and Farmland of Statewide Importance as mapped by the Farmland Mapping and Monitoring Program of the California Resources Agency) from implementation of its land use plan, given the removal of rural designations adjacent to the cities of Calistoga and Napa. This impact would be considered **significant and mitigable** under Alternative D with the implementation of mitigation measures MM 4.1.1a and b. As noted in **Table 4.1-8**, the County has gained 17,593 acres of farmlands of concern under CEQA, which would more than offset potential conversions of farmland from implementation of the land use plans under Alternative D. The County anticipates 10,000 to 12,500 additional acres of vineyard development by 2030 that would likely further increase the County's acreage of state designated Prime Farmland, Unique Farmland and Farmland of Statewide Importance.

Loss of Current General Plan Designated Agricultural Lands

This impact was identified as less than significant for Alternatives A and B and significant and unavoidable for Alternative C. Alternative D would have a **less than significant** impact given that it would increase General Plan designated agricultural lands from modifications to the land use map described above. In addition, this alternative would have the least impact of the alternatives evaluated.

Agricultural/Urban Interface Conflicts

This impact was identified as less than significant for Alternatives A, B and C and would also be **less than significant** for Alternative D. This alternative would not result in any new rural or urban interfaces with designated agricultural areas. Alternative D would also have the least conflict impact given its reduction of designated non-agricultural uses.

6.0 PROJECT ALTERNATIVES

Conflict with Agricultural Zoning and Williamson Act Contracts

As identified under Impact 4.1.4, virtually all of the so called “urban bubbles” or urbanized areas on the existing General Plan Land Use Map that are designated either “Urban Residential” or “Rural Residential” contain some land that is zoned for agricultural use. Since the General Plan Update (under all alternatives) would perpetuate this arrangement in most locations, it would not preclude rezoning and redevelopment of land that is zoned agricultural. This would not be considered a significant environmental impact because it would occur only in those areas designated for non-agricultural uses under the current Napa County General Plan. This impact was identified as significant and unavoidable for Alternatives A, B and C and would also be **significant and unavoidable** for Alternative D (even with implementation of mitigation measures MM 4.1.1a and b).

Land Use

Division of Established Communities and Land Use Conflicts

This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Pacific Coast/Boca and Napa Pipe sites. Alternative D would be **less than significant** given that it would not contain these proposed land use changes.

Conflicts with Relevant Land Use Plans, Policies or Regulations

This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Napa Pipe site and potential conflicts with the Napa County Airport Land Use Compatibility Plan. Alternative D would be **less than significant** given that it would not contain this proposed land use change.

Population/Housing/Employment

Population, Housing and Employment Increases

This impact was identified as significant and unavoidable for Alternatives A, B and C given that they would exceed regional growth projections by ABAG (see **Table 4.3-13**) as well as exceed the County’s Housing Allocation Program. Alternative D’s growth would be lowest of the alternatives considered and would be consistent with the Housing Allocation Program, but would exceed in ABAG’s growth projections, as shown in the KMA study included as **Appendix B**. Thus, this impact would be **significant and unavoidable** for Alternative D.

Jobs Housing Balance

Alternative D is projected to have the lowest growth of dwelling units (1,951 units between 2005 and 2030) out of all alternatives. However, employment opportunities would continue to increase under this alternative (9,713 jobs between 2005 and 2030). Impacts associated with potential worsening of the jobs/housing balance in the unincorporated area of the County was identified as less than significant for Alternatives B and C and significant and unavoidable for Alternative A. Alternative D would also result in a **significant and unavoidable** impact with a resulting jobs/housing balance of 2.8/1 (even with implementation of Mitigation Measure MM 4.3.2).

Displacement of Substantial Number of Persons or Housing

This impact was identified as less than significant for Alternatives A, B and C given that no substantial displacement of people is expected to occur. Alternative D would also have same **less than significant** impact.

Transportation

Travel Demand

Under Alternative D, none of the anticipated transportation improvements under Alternatives B and C would occur. While Alternative D has not been quantitatively evaluated at the same level of detail as the other alternatives, the growth in population and employment referred to above and in **Appendix B**, combined with the regional traffic that is projected to increase with or without the General Plan Update (See Section 4.4, Transportation), would necessarily result in traffic impacts similar to the other alternatives in future year 2030. Level of service, vehicle miles traveled and travel delay impacts would be significant and unavoidable under Alternatives A, B and C for various roadway segments in the County. While Alternative D would generate the least amount of traffic of the alternatives evaluated, it would still result in **significant and unavoidable** impacts to traffic conditions under year 2030 (given the extent of traffic growth expected from traffic growth from the cities and regional traffic).

Roadway Safety and Emergency Access

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.9.4 and MM 4.131.1a and b as well as compliance with applicable provisions of County Code (Chapters 15.32 and 18.84) associated with the provision of adequate emergency access. Alternative D would result in a similar **significant and mitigable** impact would also be mitigated with implementation of the above mitigation measures and County Code provisions.

Conflicts with Existing Alternative Transportation Policies and Programs

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.4.1d through g associated with the provision of transit, pedestrian and bicycle facilities. Alternative D would result in a similar **significant and mitigable** impact would also be mitigated with implementation of the above mitigation measures.

Create Additional Demand for Parking Facilities

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.4.4a and b associated with the provision of adequate parking facilities. Alternative D would result in the same **significant and mitigable** impact would also be mitigated with implementation of the above mitigation measures.

Biological Resources

Disturbance or Loss of Special Status Plant and Animal Species

As described under Impact 4.5.1, the County contains habitat conditions that support several special-status plant and animal species that occur throughout the County. **Tables 4.5-3** through

6.0 PROJECT ALTERNATIVES

4.5-6 identify potential ranges of habitat disturbance that could occur under the General Plan Update for Alternatives A, B and C and anticipated vineyard development scenarios 1 through 4 that could result in the loss of special-status plant and animal species. **Table 4.5-7** identifies potential special-status plant and animal species that could be impacted. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative 's impact would still be considered **significant and mitigable**. Implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.6.1b, MM 4.6.5a through c, MM 4.11.4 and implementation of the Napa County Conservation Regulations would avoid impacts and take of special-status species.

Loss of Sensitive Biotic Communities

As described under Impact 4.5.2, **Tables 4.5-5** and **4.5-6** identify potential conversion of land cover types that may contain sensitive biotic communities by Alternatives A, B and C and vineyard development scenario 1 through 4. Numerous sensitive natural communities are known from Napa County. There are likely to be additional areas with these unique communities since existing mapping represents only the known occurrences of these communities. Future land use activities including additional land development and vineyard conversion could affect both mapped and unmapped sites and oak woodlands. Site-specific habitat analysis may be necessary to determine the presence of additional sensitive biotic communities on undeveloped lands proposed for development. Of specific concern are vineyard development scenarios that could result in the conversion of large percentages of the total County acreage of several sensitive biotic communities (e.g., Tanbark Oak Alliance, Ponderosa Pine Alliance, Douglas Fir - Ponderosa Pine Alliance and Oregon White Oak Alliance) (see **Table 4.5-6**). This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. (As noted above, vineyard development under this alternative would be less than with all the other Alternatives, and less than scenarios 1-4.) However, this alternative's impact would still be considered **significant and unavoidable** even with the implementation of mitigation measures MM 4.5.1b and c, MM 4.5.2a through c, MM 4.6.5a through c, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would reduce loss of sensitive biotic communities.

Loss of Wildlife Movement and Plant Dispersal Opportunities

As identified under Impact 4.5.3, further development under the proposed General Plan Update could result in disruption of regional wildlife movement as well as local wildlife movement. Under Alternative D, there would be less than 10,000 acres of new vineyard development by the year 2030. Nonetheless, portions of this anticipated vineyard development would occur in the vicinity of the corridors identified in **Figure 4.5-6** (see **Appendix H** Figures 1 through 4 for vineyard development scenarios).

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.5.1a through c, MM 4.5.3a and b, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would retain wildlife movement corridors.

Conflict with Biological Resource Plans, Ordinances or Policies

There are no existing landscape-level Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within Napa County. Thus, implementation of the General Plan Update would not conflict with any such plans. The USFWS has adopted a number of Recovery Plans for certain federally listed species that are found within Napa County. As previously noted, Alternative D would result in the least acreage of new vineyard development by the year 2030 of all Alternatives. Nonetheless, portions of this anticipated vineyard development could occur within designated core areas identified in the recovery plans identified above.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.6.5a through c, MM 4.11.2a and b, MM 4.11.3a and b, MM 4.11.4, MM 4.11.5e and implementation of the Napa County Conservation Regulations that would mitigate biological resource impacts generally consistent with applicable recovery plans.

Fisheries

Sedimentation Impacts to Fisheries

As described under Impact 4.6.1, land use and development under the proposed General Plan Update would result in potential changes in sediment discharges within Napa County's watersheds that could degrade water quality in fish-bearing watercourses (see **Appendix F** for a description of fish-bearing watercourses.) Upland and stream bank erosion delivered to the County's waterways can result in sediment/siltation of downstream streams and rivers. Increased siltation in salmonid bearing waterbodies can reduce intragravel flow in spawning grounds, fill in salmonid rearing pools, and reduce or eliminate food resources. Hence, there would be a significant impact on fisheries resources in all alternatives. As noted in **Appendix F**, these sedimentation impacts to the Napa River Watershed and Suisun Creek Watershed are limiting factors for the continued production of steelhead and Chinook salmon fisheries and are the focus of the Napa River TMDL for sediment. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. (As noted

6.0 PROJECT ALTERNATIVES

above, vineyard development under this alternative would be less than 10,000 acres, and therefore less than the other alternatives and vineyard scenarios 1-4.) However, this alternative's impact would still be considered **significant and mitigable**. Implementation of mitigation measures MM 4.6.1a and b, MM 4.11.2a and b, MM 4.11.3a, MM 4.11.4 and implementation of the Napa County Conservation Regulations would mitigate sedimentation impacts to fisheries.

Other Water Quality Impacts to Fisheries

Subsequent land use activities associated with urban, rural, agricultural and resource extraction can result in generating sources of nutrients and contaminants in County waterways (e.g., paint, solvents, cement, petroleum-based products, pathogens, fertilizers and pesticides). As noted in modeling results in **Appendix H**, new vineyard development has the potential to increase concentrations of nutrients, but the degree to which this impact was assessed is likely overestimated given the limitations of the modeling process and the fertilizer application rates specific to vineyard management and irrigation methods employed in Napa County. Never the less, excess pollutants can be toxic to fisheries as well as alter dissolved oxygen and temperature conditions in waterways that also impact fish. As noted above and in **Appendix F**, fisheries, particularly salmonids, are sensitive to changes in dissolved oxygen, high temperatures, and various pollutants. Elevated nutrients in creeks and rivers may lead to depleted dissolved oxygen (DO) concentrations. The reduction in DO concentrations can result in sub-lethal chronic effects or be lethal to salmonids and other fish species. Loss of riparian cover can result in increased temperatures throughout the watershed and temperature loading in the lower watershed. Increased water temperatures can result in sublethal chronic effects (e.g., reduced growth, disease, predation), and even on mortality, of salmonids. Temperature loading in the lower watershed can create potential barriers to upstream migration of adult spawners. Pesticides used in the County can flush or seep into streams. The numerous negative effects of pesticides on salmonids and other aquatic species are well-known. Non-point source pollution, such as oil, grease, and other pollutants from machinery, vehicles, and other sources, can flush or seep in streams, either directly or indirectly. Numerous studies have demonstrated the effects of such pollutants on fisheries resources and other aquatic organisms. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. (As noted above, vineyard development under this alternative would be less than in all the other alternatives and less than in vineyard development scenario 1-4.) However, this alternative's impact would still be considered **significant and mitigable**. Implementation of mitigation measures MM 4.6.1a, MM 4.11.2a, MM 4.11.4 and implementation of the Napa County Conservation Regulations.

Hydrologic Alteration Impacts to Fisheries

Land use and development, including vineyard and other agricultural development, under the proposed General Plan Update for Alternatives A, B and C would result a loss of natural ground cover and an increase in impervious areas that could result in a substantial increase in surface runoff and peak discharge. Existing storm drain systems, including fish-bearing watercourses, could be incapable of accommodating increased flows, potentially resulting in alteration of channel conditions from flooding events. Such events could result in: (a) scouring out channels, thereby suffocating salmonid eggs, alevins, and fry; (2) displacing fish, as flooding results in

creeks overtopping the creek banks; and (3) harming fish later when oils, grease, and other pollutants from flooded streets, and other areas, flow or seep in the creeks. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than in other alternatives and less than in vineyard development scenario 1-4.) However, this alternative's impact would still be considered **significant and mitigable**. Implementation of mitigation measures MM 4.11.3a and b, MM 4.11.4 and MM 4.11.9 and b would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions when scour events occur and requiring that subsequent land uses under the General Plan Update would not result in new or increased flood impacts.

Groundwater Interactions with Surface Water Flows

Land use and development, including vineyard and agricultural development, under the proposed General Plan Update Alternatives A, B and C could result in depletion of groundwater levels that could result in decreasing or eliminating stream baseflows (see Impact 4.6.4). Loss of stream baseflow could result in loss of intragravel flows to spawning beds in spring and adversely direct egg mortality; increases in temperature; reduction in flows that reduce summer rearing habitat, and localized water elevation changes that create barriers to intra-watershed movement and/or migration to and from Napa County watersheds. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater habitat protection and preservation, and water quality improvements than envisioned under the current General Plan. (As noted above, vineyard development under this alternative would be less than in all the other alternatives and less than in vineyard development scenarios 1-4.) However, this alternative's impact would still be considered **significant and mitigable**. Implementation of mitigation measures MM 4.11.4 and MM 4.11.4 would ensure protection of surface water flows.

Direct Impacts to Habitat

As identified under Impact 4.6.5, construction consistent with development proposed under the General Plan Update Alternatives A, B and C could require the crossing of streams or incursion into riparian habitats adjacent to streams, resulting in direct loss or degradation of aquatic habitats and/or adjacent riparian vegetation. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable**.

6.0 PROJECT ALTERNATIVES

Implementation of mitigation measures MM 4.6.5a through c would avoid direct habitat impacts.

Interfere Substantially with Movement or Migratory Corridors

Water diversions (whether surface or groundwater) as well as drainage improvements and roadway crossing can result in creating barriers to anadromous fish migration to spawning and rearing areas, reduce or eliminate salmonid habitat and food resources (e.g., insects), and increase water temperatures. Additionally, stream crossings associated with development near streams can impede fish movement and migration if not properly designed. All of these impacts could result in restricting fisheries resources populations and, hence, have significantly negative impacts on the populations. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable**. Implementation of Mitigation Measure MM 4.6.6 would avoid fish movement impacts.

Noise

Noise and Land Use Compatibility

Implementation of the proposed General Plan Update would place new noise sensitive uses adjacent to areas that could be exposed to noise generating sources. For example, all alternatives would permit continued construction of dwelling units within agricultural areas and/or adjacent to major roads, and Alternatives B and C would permit a second unit on parcels on the valley floor. This impact was identified as significant and mitigable for Alternatives A, B and C. Alternative D would result in similar **significant and mitigable** noise impact (with implementation of mitigation measures MM 4.7.1a through c).

New Development Exposure to Groundborne Vibration

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Pacific Coast/Boca and Napa Pipe sites. Alternative D would have a **less than significant** impact given that it would not involve redevelopment of the Pacific Coast/Boca and Napa Pipe sites.

Project Generated Traffic Noise Increases

This impact was identified as significant and unavoidable for Alternatives A, B and C associated with projected increases in traffic volumes and associated noise levels by the year 2030. Alternative D would have the least impact, given that its traffic generation would be the lowest of the alternatives considered. However, it would still result in **significant and unavoidable** traffic noise impacts under year 2030.

Roadway Improvement Impacts to Noise-Sensitive Uses

This impact was identified as less than significant to Alternative A and significant and unavoidable for Alternatives B and C associated with the proposed roadway improvements in

the southern portion of the County (e.g., widening of SR 12). Alternative D would have a **less than significant** impact given that it would not involve roadway improvements to the southern portion of the County.

Project Generated Non-Transportation Noise Sources

This impact was identified as less than significant for Alternatives A, B and C given that normal agricultural activities are considered under the County's Right-to-Farm Ordinance and the sounds they produce are not considered undesirable as long as reasonable steps are taken to avoid conflicts. The Napa County Noise Ordinance would also be applicable to new non-transportation noise sources. As identified in **Table 4.7-8**, the Noise Ordinance includes noise performance standards that are intended to protect residential and other noise-sensitive land uses generally consistent with the noise-related compatibility of the current General Plan. Continued implementation of both the Right-to-Farm Ordinance and Noise Ordinance would ensure that potential noise conflicts with new non-residential uses are avoided. Alternative D would result the same **less than significant** impact.

Project Generated Construction Noise

This impact was identified as less than significant for Alternatives A, B and C. Typical construction equipment noise levels are shown in **Tables 4.7-6** and **-7**. Typically, small residential, commercial, or office construction projects do not generate significant noise impacts when standard construction noise control measures are enforced at the construction site and when the duration of the noise generating construction period is limited to one construction season (typically one year) or less. The Napa County Noise Ordinance specifies noise limits (see **Table 4.7-9**) for construction activities and limits construction to within the hours of 7 a.m. and 7 p.m., which avoids temporary noise conflicts with noise-sensitive land uses by avoiding noise-sensitive hours (7:00 p.m. to 7:00 a.m. when sleep generally occurs). Alternative D would result the same **less than significant** impact.

Noise and Land Use Compatibility (Aircraft)

This impact was identified as significant and mitigable for Alternatives A, B and C associated with the Angwin-Virgil O Parrett Field. Near Angwin-Virgil O Parrett Field in Angwin, there are parcels within proximity of the airport that would permit residential uses (one house per parcel plus a second unit), even though they are within land use compatibility zones that would normally preclude residential use. In addition, future residential uses could also be exposed to noise impacts from single event noise from individual aircraft. Alternative D would result in the same **significant and mitigable** impact that would be mitigated through implementation of Mitigation Measure MM 4.7.7.

Air Quality

Consistency with Air Quality Regulations

As identified under Impact 4.8.1, implementation of the General Plan Update (under all alternatives) would result in growth that exceeds ABAG growth projections used by the BBAQMD for the development of attainment plans. In addition, the General Plan Update does not include adequate clean air transportation control measures. This impact was identified as significant and unavoidable for Alternatives A, B and C. Alternative D would have the least impact of the alternatives evaluated. However, this alternative would still exceed ABAG growth projections and does not include adequate clean air transportation control measures.

6.0 PROJECT ALTERNATIVES

Alternative D's impact would be **significant and unavoidable** even with the implementation of mitigation measures MM 4.8.1a through d.

Conflicts with Particulate Matter Attainment Efforts

As identified under Impact 4.8.2, implementation of the General Plan Update (under all alternatives) would contribute to particulate matter emissions to the air basin that already exceeds state ambient air quality standards. Alternative D would have the least impact of the alternatives evaluated from the reduced extent of development by the year 2030. However, this alternative would still contribute to particulate matter emissions. Alternative D's impact would be **significant and unavoidable** even with the implementation of mitigation measures MM 4.8.2.

Grading and Temporary Construction

This impact was identified as significant and mitigable for Alternatives A, B and C. Construction activities such as demolition, grading, construction worker travel to and from project sites, delivery and hauling of construction supplies and debris to and from development sites, and fuel combustion by on-site construction equipment would generate pollutant emissions. Alternative D would have the least impact, given its reduced development potential. Alternative D's impact would be **significant and mitigable** with the implementation of mitigation measures MM 4.8.3a through d.

Odors

This impact was identified as significant and mitigable for Alternatives A, B and C. Implementation of the General Plan Update (under all alternatives) may involve the placement of sensitive receptors (e.g., new residences) near wastewater treatment ponds, composting facilities, sanitary landfills or transfer facilities, or similar uses. Localized sources of odors could include painting/coating operations or restaurants, including fast-food restaurants. Alternative D would result in the same **significant and mitigable** impact that would be mitigated with the implementation of Mitigation Measure MM 4.8.4.

Exposure to Air Toxic Contaminants

The placement of sensitive receptors (e.g., new residences) near freeways, truck distribution centers, large warehouses, large gasoline fueling stations, heavy industrial sites, corporation yards, bus stations, quarries and dry cleaners are typical situations where sensitive receptors could be exposed to toxic air contaminants (TACs). This impact was identified as significant and mitigable for Alternative A and significant and unavoidable for Alternatives B and C as a result of major roadway improvements in the southern portion of the County could move mobile sources of TACs closer to existing sensitive receptors. Alternative D would result in the same **significant and mitigable** impact as Alternative A that would be mitigated with the implementation of Mitigation Measure MM 4.8.5.

Carbon Monoxide Concentrations along Roadways

This impact was identified as less than significant for Alternatives A, B and C. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Since the early 1990s, carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area. As a result, the region has been designated as attainment for the standard. Based on technical analysis of traffic

conditions under Alternatives A, B and C, no violations of state or federal standards were identified. Given that Alternative D would result in less development than the three alternatives evaluated, it would result the same **less than significant** impact.

Potential Increase in Long-Term Atmospheric Greenhouse Gas Emissions

Projected population growth and an increase in the County's wine making operations, resulting from implementation of the General Plan Update (under all alternatives), may lead to an increase in GHG emissions. Research and experience indicate that increased population and industrial activities result in an increase in GHG emissions. Increased GHG emissions from the unincorporated portion of the County (in combination with emissions from the cities in the County and surrounding counties) are expected from these sectors by the year 2030, which could conflict with the state efforts to reduce GHG emissions to 1990 levels as set forth in AB 32. This impact was identified as significant and unavoidable for Alternatives A, B and C. Alternative D would result in less development than the three alternatives evaluated (approximately 3,780 metric tons of greenhouse gas emissions generated by residential development projected by year 2030). However, this alternative would also result in a **significant and avoidable** impact (even with implementation of Mitigation Measure MM 4.8.7).

Human Health/Risk of Upset

Routine Transport of Hazardous Materials

This impact was identified as less than significant for Alternatives A, B and C. The transportation of hazardous materials on area roadways is regulated by the California Highway Patrol, U.S. Department of Transportation (Hazardous Materials Transportation Act) and Caltrans, and use of these materials is regulated by the DTSC (22 Cal. Code Regs §§ 66001, et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards and regulations designed to avoid hazardous material releases. All existing and future development in the unincorporated County would be required to comply with federal, state and local regulations regarding the handling, transportation, disposal, and clean-up of hazardous materials. Alternative D would result in the same **less than significant** impact.

Release and Exposure to Hazardous Materials

As identified under Impact 4.9.2, hazardous materials used during construction and operational activities throughout the County under the proposed General Plan Update (under all alternatives) may expose nearby residents and other sensitive receptors to toxic emissions. Electrical transformers and industrial products containing polychlorinated biphenyls (PCBs) and heavy metals, as well as persistent residual chemicals including pesticides, herbicides, and fertilizers have the potential to pose a health and safety risk via accidental release, misuse or historic use in the County. This impact was identified as significant and mitigable for Alternatives A, B and C. Alternative D would result in a similar significant and mitigable impact that would be addressed through implementation of mitigation measures MM 4.8.5 and MM 4.9.2 that would address discovered hazardous materials and potential exposure to toxic air contaminants.

6.0 PROJECT ALTERNATIVES

Airport Hazards

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Napa Pipe site. Alternative D would have a **less than significant** impact given that it would not involve redevelopment of the Napa Pipe site.

Interference With and Adopted Emergency Response or Evacuation Plan

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the intensification of development potential under these alternatives (e.g., Pacific Coast/Boca and Napa Pipe sites). Alternative D would have a **less than significant** impact given that it would not involve intensification of development that is proposed under Alternatives B and C.

Wildland Fire

This impact was identified as less than significant for Alternatives A, B and C. The "Napa Firewise" program is currently, and would continue to be, implemented under Alternatives A, B and C in the proposed General Plan Update as well as County Code provisions associated building requirements (Chapter 15.32) and fire risk zones (Chapter 18.84) and Public Resources Code Sections 4290 and 4291. "Napa Firewise" is a community-based fire awareness program to educate the residents of Napa County on the dangers wildland fire poses to them and their community. The program also provides steps homeowners and landowners can take to protect themselves, their family and neighbors and to reduce threats to their property from wildland fires. County Code and Public Resources Code provisions provide development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access, water for fire fighting and other associated standards. Alternative D would result in the same **less than significant** impact.

Geology and Soils

Seismic Ground Shaking

The hazards related to ground shaking include the risk of loss, injury or death. Buildings that were constructed within the County prior to 1930, including unreinforced masonry (URM) buildings that have not been seismically retrofitted are most likely to have structural failure or collapse occur. Buildings that have been seismically retrofitted would have a decreased chance of failure. However, even structurally enhanced buildings and newer buildings could still experience significant damage and present a hazard to occupants. The San Francisco Bay Area has a 62% chance of experiencing a magnitude 6.7 or larger earthquake by the year 2032 (Napa County, BDR 2005). Smaller magnitude earthquakes (between magnitudes 6.0 and 6.7), capable of considerable damage depending on proximity to urban areas, have about an 80% chance of occurring in the San Francisco Bay Area by 2032. A large earthquake in the San Francisco Bay Area would have a regional effect and could impact the future development and land uses that would occur in the County irrelevant of the adoption of the proposed General Plan Update. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat

preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.1 in addition to the provisions of UBC and CBC and County Code Chapter 18.88).

Seismic Related Ground Failure

Seismic related ground failures include, surface fault rupture, lateral spreading, lurching, and liquefaction. As discussed in Impact 4.10.1 the San Francisco Bay Area has a 62% chance of experiencing a magnitude 6.7 or larger earthquake by the year 2032 and would result in region-wide effects. Various kinds of seismic related ground failures can result from major earthquakes. The type of resulting ground failure depends on several factors including earthquake magnitude, duration and amplitude of seismic energy at the failure site, soil type, soil saturation, groundwater depth, steepness and topography. Seismic related ground failure can result in damage to structures, infrastructure, and nonstructural building elements. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.2 in addition to the provisions of UBC and CBC and County Code Chapter 18.88 and 18.108).

Tsunamis and Seiches

This impact was identified as less than significant for Alternatives A, B and C. Potential for damage caused by tsunamis is considered low given the County is not directly exposed to the open ocean and lack of bay front. Currently, risk analysis of tsunamis has been limited to the evaluation of the ocean sides of San Francisco and San Mateo counties. Seiches would be limited to the larger reservoirs in the County (e.g., Lake Berryessa, Bell Canyon Reservoir, Lake Hennessey, Rector Reservoir and Milliken Reservoir). However, the potential for the loss of life and damage to structures is considered low given that development is largely restricted immediately along the shorelines of these reservoirs given their use as municipal water supply sources and County General Plan land use designations and zoning. Alternative D would result in the same **less than significant** impact.

Landslides

Landslides in the Napa Valley subregion are predominantly located on the hillsides northeast of American Canyon. Areas that are prone to landslides around Napa Valley are generally located on the hillsides east of Yountville and St. Helena as well as the hillsides west of Conn Creek, particularly along SR 128. Landslides in the Interior Valleys subregion are predominantly located on the hillsides surrounding Pope Valley, Hardin Creek, Capell Creek, Atlas Peak Road, and SR 121. Landslides in the Barryessa/Knoxville subregion are predominantly located on the hillsides west of Lake Barryessa, and in the most northeastern portion of Napa County, which are among the most landslide prone hillsides in Napa County. This impact was identified as significant and unavoidable under Alternatives A, B and C.

6.0 PROJECT ALTERNATIVES

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.4a through c in addition to the provisions of Napa County Conservation Regulations (County Code Chapter 18.108)).

Subsidence and Settling

Subsidence and settlement result from the same physical processes. Settlement is usually considered to occur within a relatively short time frame and within a small area, for instance on the project scale. Subsidence takes place over a longer time frame and a broader regional area. Subsidence/settlement can occur differentially; that is, one area or location subsides or settles more than another. The results of subsidence/settlement, especially when it occurs differentially, can be quite damaging. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and avoidable** (even with implementation of the Mitigation Measure MM 4.10.1 and MM 4.10.2 in addition to the provisions of Napa County Conservation Regulations (County Code Chapter 18.108)).

Expansive Soils

This impact was identified as less than significant for Alternatives A, B and C. Expansive soils exist at a variety of locations through the County, as indicated in the BDR Soil Texture Classes map 1-16. In the Napa Valley subregion, clay-rich soils predominantly occur at low elevations near Yountville and the City of Napa. In the Interior Valleys subregion, clay-rich soils predominantly occur in the Pope Valley and surrounding Suisun Creek. In the Barryessa/Knoxville subregion, clay-rich soils predominantly occur east and southeast of Lake Barryessa. If expansive soils are initially anticipated through map review, their actual presence or absence should be determined prior to construction by site-specific geotechnical investigations. When this is done, special engineering methods can be used to reduce the stresses on buildings and utility lines. Once identified, the adverse effects of expansive soils can be avoided through proper drainage, subsoil preparation, and foundation design. When expansive soils occur on a hill slope, they undergo the slow seasonal down slope movement known as *soil creep*. This down slope process adds to the potential for these soils to damage improvements. Geotechnical investigations would identify this potential and engineering methods for structural development based on UBC and CBC standards will be implemented to avoid damage that would otherwise result from expansive soil hazards and soil creep. Site specific geotechnical investigations required by the County and adherence to the UBC and CBC would reduce the impacts of expansive soils on new development. Alternative D would result in the same **less than significant** impact.

Septic System Operation

This impact was identified as less than significant for Alternatives A, B and C. Title 13, Division II of the County Code establishes specific design, location, capacity and testing standards for the installation of septic systems that ensure proper operation and avoidance of impacts to groundwater resources. When appropriate field-testing is conducted and current system location and design standards are used combined with post construction monitoring and maintenance, the potential adverse impacts to septic suitability of soils can be reduced to acceptable levels. Existing County regulations for septic systems would reduce the potential adverse impacts on surface and ground water resulting from septic suitability of soils. Alternative D would result in the same **less than significant** impact.

Mineral Resources

This impact was identified as less than significant for Alternatives A, B and C. Implementation of the proposed General Plan Update (under all alternatives) would largely retain the current land use patterns and would not result in the expansion of substantial new rural or urban land uses in the County that would preclude future mineral extraction. Alternative D would result in the same **less than significant** impact.

Hydrology and Water Quality

Non-Point Source Pollution from Urban Runoff

Development and maintenance of land uses such as residential, commercial, industrial, and public facilities (e.g., roads, schools, maintenance and corporation yards, water supply, and wastewater facilities) creates additional impervious surfaces and generates additional automobile use. Development allowed by the General Plan Update (under all alternatives) could also result in increased use of materials that can impair water quality, such as fertilizers and pesticides (e.g., for landscaping), construction chemicals (e.g., paint, solvents, cement, petroleum-based products), and toxic chemicals (e.g., for industrial uses or energy production). Water, typically as rainfall, moves over these impervious surfaces, where it picks up, carries away natural (e.g., sediment) and human-made pollutants (e.g., oil, pesticides, etc.) from paved or impervious surfaces, and deposits them into streams, rivers, wetlands, and eventually coastal waters.

As part of the County's compliance with the requirements of the NPDES stormwater permitting program, the County adopted Ordinance No. 1240 (Stormwater Management and Discharge Control) on June 22, 2004. The purpose of this ordinance is to protect water resources and improve water quality through the use of BMPs and meet the requirements of the Clean Water Act, Porter-Cologne Water Quality Act and the Basin Plan. Specifically, Section 16.28.100 requires the identification and use of BMPs to control the volume, rate and potential pollutant discharge from new development and redevelopment projects, existing businesses and other activity that may cause or contribute to stormwater pollution. The County currently accepts the California Stormwater Quality Association (CASQA) California Stormwater Best Management Practice Handbooks as effective standards for implementation and installation of stormwater pollution prevention measures, which provides detailed information on BMPs associated with use and design for maximum treatment effectiveness. This impact was identified as less than significant for Alternatives A, B and C. Alternative D would result in the same **less than significant** impact.

6.0 PROJECT ALTERNATIVES

Construction-Related Soil Erosion and Sedimentation

As identified under Impact 4.11.2, construction of land uses allowed under the proposed General Plan Update could result in the construction of a wide range of uses, including residential, commercial and industrial buildings, public facilities, and agricultural-related uses (e.g., processing, support, and visitor-serving uses) amongst others. Erosion and sedimentation resulting from construction activities in the unincorporated parts of Napa County could represent a significant source of particulate pollution conveyed in storm water runoff. Grading and other earthmoving activities could alter drainage patterns and therefore have the potential to accelerate soil erosion well above natural background rates. Vegetative cover, which acts to stabilize the soil, would generally be removed from areas where earthwork and grading activities would occur during the construction. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in least impact (as compared to the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of the Mitigation Measure MM 4.11.2a and b that provide for continued implementation of effective County Code provisions and use of BMPs [as further documented under **Appendix I**]).

Agricultural and Resource Uses

As described under Impact 4.11.3, continued agricultural land uses and potential resource extraction under the proposed General Plan Update could potentially be a significant source of soil erosion and sedimentation of downstream waterways, especially when such land use activities occur on moderate to steep slopes or on highly erodible soils. It should be noted that this continued growth of agricultural uses (vineyards especially) in the County is expected to occur whether or not the Napa County General Plan is updated. These land use activities could also be sources of nutrients and contaminants from application of agro-chemicals used in agricultural operations (e.g., fertilizers and pesticides) containing nitrogen and phosphorous in agricultural runoff. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than with the other alternatives and less than in vineyard development scenario 1-4). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a and b, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and use of BMPs [as further documented under **Appendix I**]).

Groundwater Level and Decline and Overdraft

As identified under Impact 4.11.5, urban, rural and agricultural development and land use activities would increase groundwater demands and have impacts on groundwater storage. Modeling results show most evaluation areas with decreases in groundwater discharge to the channel network (baseflow), while in the Berryessa and Suisun areas, baseflow increased (see **Appendix H**), while Appendix J identifies that cumulative water demands for the years 2020 and 2050 in the Napa Valley would exceed current water supplies (including groundwater resources). This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of mitigation measures MM 4.11.4 and MM 4.11.5a through e).

Well Competition and Adverse Well Interference

Groundwater wells in close proximity or adjacent to each other can be thought of as competing for the same groundwater resource, especially in areas where the availability of groundwater is limited, in areas of declining groundwater and overdraft conditions, and in areas of poorly producing aquifer materials, such as hard-rock aquifers. When a well is pumped, a portion of the aquifer around it is dewatered or lowered, creating what is known as a cone of depression. Adjacent wells with overlapping cones of depression may have problems getting water if water levels are lower than the well pumps. Where such competition is significant it may affect the performance and delivery of water to the adjacent well(s). This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.11.5e that provides for performance standards to avoid well interference).

Changes to Drainage Patterns Leading to Increased Runoff and Streambank Erosion

Land uses and development under the proposed General Plan Update would result in a gradual increase in impervious cover, especially in urban areas and some of the rural areas. Typically, increases in impervious cover result in an increase in stormwater runoff, higher peak stream discharges, and decreased groundwater recharge. Minor increases in tributary flows can also exacerbate creek bank erosion and/or cause destabilizing channel incision by altering the two-year or channel-forming flow, to which most creeks adjust by processes such as channel widening and deepening. Bank instability and bank failure often results in drainage systems where the "channel-forming" flow has been substantially altered. This impact was identified as significant and mitigable for Alternatives A, B and C.

6.0 PROJECT ALTERNATIVES

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than with other alternatives and less than in vineyard development scenario 1-4) However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and BMPs and use of performance standards to retain pre-development peak flow conditions).

Changes to Drainage Patterns Leading to Increased Runoff and Hillside Erosion

As identified under Impact 4.11.8, subsequent urban and rural development, vineyard development, other agricultural activities and resource extraction activities in the County could result in alterations to existing drainage patterns, increasing runoff and hillside erosion. Agricultural land use practices can also alter the infiltration properties of surface soils (sometimes beneficially) and can also have similar, but more often smaller, effects on the hydrologic cycle. Increased peak discharges resulting from changes in land use have the potential to degrade water quality by creating erosive velocities and higher bank shear stress, which can ultimately cause bank and bed erosion and/or sedimentation in drainages and streams. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would more be less than with other alternatives and less than in vineyard development scenario 1-4). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and BMPs and use of performance standards to retain pre-development peak flow conditions).

Increased Flood Risk from Drainage System Alteration

Land uses and development consistent with the proposed General Plan Update could increase runoff and result in adverse modifications to local and regional hydrology. While the majority of future urban development would be concentrated in the cities and existing urban and rural areas, growth of agricultural, rural and urban uses in the unincorporated area of the County may necessitate the construction of new drainage facilities for stormwater conveyance and management systems on tributaries and watershed mainstreams. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth, and provide suitable flood protection. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat

preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than with other alternatives and less than in scenario 1-4.) However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.3a, MM 4.11.4 and MM 4.11.9 that provide for the use of performance standards to retain pre-development peak flow conditions).

100-Year Flood Hazard Areas

This impact (Impact 4.11.10) was identified as less than significant for Alternatives A, B and C. The proposed General Plan Update generally would continue to allow new development and redevelopment within unincorporated areas designated by FEMA as Special Flood Hazard Areas, consistent with the County Floodplain Management Ordinances and the Code of Federal Regulations for the National Flood Insurance Program. The current County Code does not allow development within a defined floodway (unless within footprint of existing structure or certified by registered engineer or architect to not result in any increase in base flood elevation), and does not allow development in the floodplain if the project would increase the base flood elevation by more than one foot, except in special cases. The current County Code requires residential structures built within a FEMA designated Special Flood Hazard Area to be elevated at least one foot above the elevation of the 100-year flood level to protect these structures from flood damage. Napa County and FEMA federal floodplain management guidelines and regulations allow placement of fill within the floodplain to raise building pads above the 100-year flood level as long as it is not within the floodway or the base flood elevation is not raised greater than 1 foot. New nonresidential buildings must either meet this criterion or provide an alternate method of flood proofing that is certified by a registered engineer and approved by the Department of Public Works. Alternative D would result in the same **less than significant** impact.

New Vineyard Development and 100-Year Flooding

Conversion of existing land uses to new vineyard development, due to drainage diversions, changes to cover crop, and removal of vegetation, can produce greater overland runoff to the channel network. **Table 4.11-6** shows the gaging sites where flows and water surface elevations increased significantly—at two locations on the Napa River, and at Canon Creek's junction with Bell Creek, on the valley floor (based on hydrologic modeling of anticipated vineyard development by the year 2030 [see **Appendix H**]). This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than with other alternatives and less than in vineyard development scenario 1-4.) However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.9 would ensure that subsequent land uses under the General Plan Update would not result in new or increased flood impacts, while MM 4.11.3a and MM 4.11.4 would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions).

6.0 PROJECT ALTERNATIVES

Cultural and Paleontological Resources

Archaeological (Prehistoric and Historic) Resources, Human Remains, and Paleontological Resources

Future development in the County could impact archaeological resources, human remains, and paleontological resources whether or not the General Plan is updated. Parts of Napa County have been subject to archaeological and historical investigations, but the entire County has not been subjected to detailed investigation. Nonetheless, the presence of 1,138 known archaeological sites in Napa County suggests that the County should be considered sensitive for prehistoric and historic cultural resources. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would more likely match vineyard development scenario 1 that has reduced development along hillsides). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.12.1 would identify significant archaeological resources, human remains, and paleontological resources prior to implementation of a project and would ensure appropriate actions when resources are encountered).

Historic Architectural Resources

Future development in the County could impact historic architectural resources. **Table 4.12-2** identifies known historic resources in the County that are listed under the California Register of Historic Resources and/or the National Register of Historic Places. In addition, it appears that additional historic architectural features could be eligible for inclusion in the NRHP and/or the CRHR if they were subjected to research to formally determine their historic significance. The scope and distribution of development assumed under all alternatives could cause potentially significant impacts to identify and as yet unidentified historic and architectural resources. This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would be less than with other alternatives and less than in vineyard development scenario 1-4.) However, this alternative's impact would still be considered **significant and unavoidable** (with implementation of Mitigation Measure MM 4.12.2 would identify significant historic architectural resources prior to implementation of a project and would afford and opportunity to take appropriate action to protect a resource).

Public Services and Utilities

Fire Protection and Emergency Medical Services

Subsequent development and growth in the County would increase the demand of fire protection services in the County. As described in Section 3.0 (Project Description), the proposed General Plan Update (under all alternatives) would largely retain existing land use patterns and would focus development into and adjacent to existing cities and areas designated for rural and urban development. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.13.1.1a through c as well as compliance with County Code (Chapters 15.32 and 18.84) and Public Resources Code Sections 4290 and 4291 (e.g., provisions associated with development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access, water for fire fighting) would ensure that subsequent development under the proposed General Plan Update would not adversely impact fire protection services).

Law Enforcement Services and Standards

As identified under Impact 4.13.2.1, continued growth and development would increase the demand for law enforcement services. This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C as a result of proposed intensification of growth proposed under these alternatives. Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and have a **less than significant** impact similar to Alternative A.

Water Supply Impacts

As shown in **Tables 4.13.3-36** and **4.13.3-37**, future growth projected in the Napa Valley is anticipated to exceed current and projected water supply sources under year 2020 and 2050 and would further exacerbate groundwater conditions for MST and Carneros basins. In addition, the cities of American Canyon, St. Helena and Calistoga (some which currently provide or may provide in the future water supply to adjoining unincorporated areas) are projected to experience water treatment plant production deficiencies during maximum day demands for years 2020 and 2050 (see Table 4 of Technical Memorandum No. 7 of the 2050 Napa Valley Water Resources Study[**Appendix J**]). This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative D would result in a reduced water supply impact (as compared to Alternatives B and C) given the reduced non-agricultural development potential associated with its land use map. Water demands under Alternative D would be 735 acre-feet annually for residential uses and 2,826 acre-feet annually for non-residential uses by year 2030. However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of mitigation measures MM 4.11.4, MM 4.11.5a through e, MM 4.13.3.1a and b and County Code (Chapters 13.04, 13.08, 13.12 and 13.15)).

6.0 PROJECT ALTERNATIVES

Sewer Treatment and Conveyance

As noted under Impact 4.13.4.1, subsequent development under the proposed General Plan Update would increase the demand for sewer service County-wide. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the lowest wastewater service demand impacts (as compared to Alternatives A, B and C) given the reduced non-agricultural development potential associated with its land use map. Wastewater service demands under Alternative D would be 0.88 million gallons per day by year 2030. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.13.4.1 and County Code associated with sewer system design and operation).

Solid Waste Service

As identified under Impact 4.13.5.1, the Keller Canyon Landfill had 64.8 million cubic yards of remaining capacity and has enough permitted capacity to receive solid waste through 2030, which is its anticipated closure date (California Integrated Waste Management Board, April 2006). In addition, the County would continue to implement the Source Reduction and Recycling Element (SRRE), Non-disposal Facility Element (NDFE) and Household Hazardous Waste Element (HHWE) that are included in the County's Integrated Waste Management Plan, which would ensure continued compliance with AB 939 under the proposed General Plan Update (all alternatives). This impact was identified as less than significant for Alternatives A, B and C. Alternative D would result in least amount of solid waste generation by year 2030 (13,789 tons per year) and would result in the same **less than significant** impact.

Public School Facilities

Growth and development under the proposed General Plan Update by the year 2030 would increase the demand for public schools. California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation. In Napa County, project applicants proposing new building square footage are directed to the applicable school district to pay required fees prior to permit issuance. This impact was identified as less than significant for Alternatives A, B and C. Alternative D would result in the same **less than significant** impact.

Provision of Electric and Natural Gas Resources

As identified under Impact 4.13.7.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for electricity and natural gas services. Subsequent development under the each of the alternatives would be required to comply with recently adopted changes to Title 24 of the California Code of Regulations regarding energy efficiency that were effective in September 2005. This impact was identified as less than significant for Alternatives A, B and C. Alternative D would result in the same **less than significant** impact.

Social Services

As identified under Impact 4.13.8.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for social services. Continued growth in the unincorporated area of the County under the General Plan Update (all alternatives) would increase the demand for social services identified in **Table 4.13.8-1**. As indicated in **Table 4.13.8-1**, Cal-Works and CPS would need to add additional staff members to meet any increase in demand, as these departments are currently understaffed. The only planned improvement that has the potential to result in physical impacts is the County's Public Assistance Program, which plans to add an express lane; however, this improvement would occur at the existing facility and little or no impacts on the physical environment are anticipated. This impact was identified as less than significant for Alternatives A, B and C. Alternative D would result in the same **less than significant** impact.

Parks and Recreation

As identified under Impact 4.12.9.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for recreation opportunities and facilities. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in reduced recreation demand impacts (as compared to Alternatives A, B and C) given the reduced non-agricultural development potential associated with its land use map. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.13.9.1a through c that ensures that recreational facilities are provided to meet demand of growth).

Visual Resources

Degradation of the Quality of Visual Character Associated with Designated Scenic Resources Within the County

Development projected under the proposed General Plan Update has the potential to result in significant impacts to designated scenic resources (ridgelines, etc.) identified in the current General Plan as well as in the Napa County Viewshed Program. Impacts could include placement of structures or other improvements, grading, and roadway placement on ridgelines and along County designated scenic roadways that are out of character with the landscape characteristics of the view. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.14.1a through c would ensure that County designated scenic ridgelines and roadways retain their existing visual character, and that views and the visual character of the County are not substantially affected).

6.0 PROJECT ALTERNATIVES

Daytime Glare and Nighttime Lighting

Implementation of the General Plan Update may introduce new sources of daytime glare and may change nighttime lighting and illumination levels. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative D would result in the least impact (of the alternatives under consideration) given the reduced non-agricultural development potential associated with its land use map and that the AWOS designation would be split into two districts: AOS and WOS, with the latter including areas where policies would be developed to achieve greater forest protection, riparian habitat preservation, and water quality improvements than envisioned under the current General Plan (as noted above, vineyard development under this alternative would more likely match vineyard development scenario 1 that has reduced development along hillsides). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.14.2a through d would address glare and nighttime lighting impacts).

6.5 ALTERNATIVE E – JOBS/HOUSING BALANCE ALTERNATIVE

CHARACTERISTICS

Alternative E would be the most intense of all the alternatives analyzed, but for that reason would provide the best balance of jobs and housing and the greatest likelihood that residents and employees would find transit feasible as an alternative to the private automobile. Alternative E would provide for enhanced transportation improvements and expansions of sewer and water infrastructure. Urban and rural development opportunities would be expanded in several areas of the County. More hillside development would be permitted – probably by reducing minimum parcel sizes in the AWOS district from 160 to 40 acres. A Measure J vote would be required.

Land Use Plan and Development Potential

As shown in **Figure 6.0-2**, current rural designated areas adjacent to Berryessa Estates, City of Calistoga and the City of Napa would be reduced or eliminated, while urban designated areas in Pope Creek would be re-designated rural residential. Similar to Alternative C, a new RUL would be established for the City of American Canyon. Napa Pipe would be re-designated as commercial mixed-use and may include development of a hotel and conference center. At Napa Pipe, no new dwelling units would be constructed, but 2,048 jobs would be created. The Pacific Coast/Boca site would be re-designated as residential mixed-use (high density residential with neighborhood-serving retail and public open space). Hess Vineyard would retain its current industrial land use designations and would convert to industrial use. Angwin would be developed with more residential and business uses and would involve the expansion of urban and/or rural land use designations to reflect actual development conditions in the area. Other agricultural areas would see minimum parcel sizes decreased in the AWOS, which would allow additional residential development potential. Industrial and business park uses in the vicinity of the Napa County Airport would continue to build out. The County-owned sites in the City of Napa could result in 700 new dwelling units. This Alternative would result in an increase of 6,535 residential units and an increase of 14,376 new jobs between year 2005 and 2030 (see Table VI in the Industrial Land Use Study – Napa County General Plan Update in **Appendix B** for further details on assumed development under this alternative). A Measure J vote would be required.

Vineyard and Winery Processing/Operations

The minimum parcel size for wineries would be decreased from 10 acres to an as yet to be determined size in some areas. Erosion Control Plans would become ministerial with BMPs and vineyards would be allowed on slopes of up to 35% (instead of 30%) without a use permit. Vineyard development scenario 4 specifically evaluates this option, which consists of 15,000 acres of new vineyard development by year 2030 with an emphasis on lands between 30 and 35% slope (see Section 4.11 [Hydrology and Water Quality] and **Appendix H**).

Transportation and Infrastructure

This alternative would include the same following roadway improvements to the southern portion of the County as Alternatives B and C:

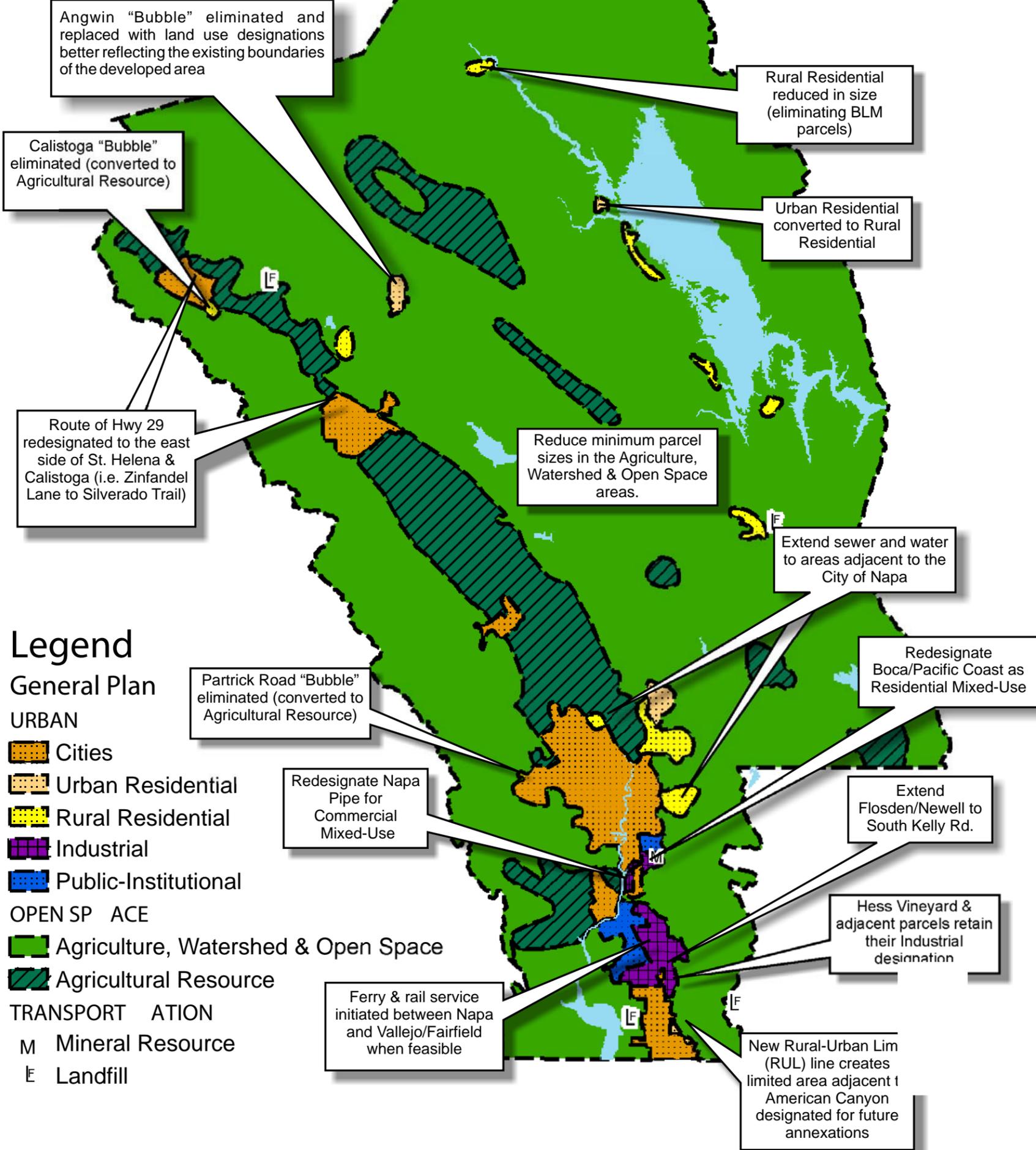
- Construction of a northern extension of the Flosden/Newell Road from American Canyon Road to Green Island Road.
- Widening of State Route 12 to four lanes from State Route 29 to Interstate 80 and constructing a new centerline safety barrier.
- Construct an interchange at the Airport Road/State Route 29/State Route 12 intersection.
- Improvements to SR 29 between Green Island Road and SR 221 (widening and Soscol Flyover).

In addition, SR 29 would be re-designated around St. Helena and Calistoga. Ferry and transit service between the cities of Vallejo and Napa would be considered with possibly a service between the cities of Fairfield and Napa. The emphasis would be on energy conservation with a potential for a power generation facility at Knoxville and some sewer and water expansions in the vicinity of the City of Napa.

6.0 PROJECT ALTERNATIVES

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Updated Plan with several changes in policy requiring a vote pursuant to Measure J. Infrastructure improvements and changes to the Land Use map as shown.



Legend

- General Plan**
- URBAN**
- Cities
 - Urban Residential
 - Rural Residential
 - Industrial
 - Public-Institutional
- OPEN SPACE**
- Agriculture, Watershed & Open Space
 - Agricultural Resource
- TRANSPORTATION**
- Mineral Resource
 - Landfill

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Source: Napa County Planning Department



FIGURE 6.0-2
ALTERNATIVE E



ENVIRONMENTAL ANALYSIS

The following analysis is based on the significant environmental impacts identified in Sections 4.1 through 4.14

Agriculture

Conversion of Agricultural Lands to Non-Agricultural Uses

Alternative E would result in similar impacts to Alternative C regarding of the conversion of farmlands of concern under CEQA (Prime Farmland, Unique Farmland and Farmland of Statewide Importance as mapped by the Farmland Mapping and Monitoring Program of the California Resources Agency) from implementation of its land use plan. In addition to its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga) and the growth effects of extending sewer and water service around the City of Napa would also result in significant conversion impacts. This impact would be considered **significant and mitigable** under Alternative E with the implementation of mitigation measures MM 4.1.1a and b. As noted in **Table 4.1-8**, the County has gained 17,593 acres of farmlands of concern under CEQA, which would more than offset potential conversions of farmland from implementation of the land use plans under Alternative E. The County anticipates 10,000 to 15,000 additional acres of vineyard development by 2030 that would likely further increase the County's acreage of state designated Prime Farmland, Unique Farmland and Farmland of Statewide Importance.

Loss of Current General Plan Designated Agricultural Lands

This impact was identified as less than significant for Alternatives A and B and significant and unavoidable for Alternative C. Alternative E would result in a **significant and unavoidable** impact given the establishment of the RUL for the City of American Canyon and roadway and infrastructure improvements identified in the above impact discussion. This alternative would likely result in the highest loss of County designated agricultural lands.

Agricultural/Urban Interface Conflicts

This impact was identified as less than significant for Alternatives A, B and C and would also be **less than significant** for Alternative E (though it would result in similar conflicts as identified under Alternative C).

Conflict with Agricultural Zoning and Williamson Act Contracts

As identified under Impact 4.1.4, virtually all of the so called "urban bubbles" or urbanized areas on the existing General Plan Land Use Map that are designated either "Urban Residential" or "Rural Residential" contain some land that is zoned for agricultural use. Since the General Plan Update (under all alternatives) would perpetuate this arrangement in most locations, it would not preclude rezoning and redevelopment of land that is zoned agricultural. This would not be considered a significant environmental impact because it would occur only in those areas designated for non-agricultural uses under the current Napa County General Plan. This impact was identified as significant and unavoidable for Alternatives A, B and C and would also be **significant and unavoidable** for Alternative E (even with implementation of mitigation measures MM 4.1.1a and b).

6.0 PROJECT ALTERNATIVES

Land Use

Division of Established Communities and Land Use Conflicts

This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Pacific Coast/Boca and Napa Pipe sites. Alternative E would be **significant and mitigable** (with the implementation of Mitigation Measure MM 4.2.1 and associated mitigation measures identified under Noise [Section 4.7] and Air Quality [Section 4.8]) given that it would contain similar proposed land use changes.

Conflicts with Relevant Land Use Plans, Policies or Regulations

This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Napa Pipe site and potential conflicts with the Napa County Airport Land Use Compatibility Plan. Alternative E would be **significant and mitigable** (with the implementation of Mitigation Measure MM 4.2.2 that would avoid conflicts with the intent of the Napa County Airport Land Use Compatibility Plan) given that it would contain similar proposed land use changes.

Population/Housing/Employment

Population, Housing and Employment Increases

This impact was identified as significant and unavoidable for Alternatives A, B and C given that they would exceed regional growth projections by ABAG (see **Table 4.3-13**) as well as exceed the County's Housing Allocation Program. Alternative E growth would be inconsistent with the Housing Allocation Program and would exceed in ABAG's growth projections. Thus, this impact would be **significant and unavoidable** for Alternative E.

Jobs Housing Balance

Alternative E is projected to have 6,535 dwelling units (between 2005 and 2030) and 14,376 jobs (between 2005 and 2030). Impacts associated with potential worsening of the jobs/housing balance in the unincorporated area of the County was identified as less than significant for Alternatives B and C and significant and unavoidable for Alternative A. Alternative E would also result in a **less than significant** impact with a resulting jobs/housing balance of 2.3/1, which is improved over current conditions.

Displacement of Substantial Number of Persons or Housing

This impact was identified as less than significant for Alternatives A, B and C given that no substantial displacement of people is expected to occur. Alternative E would also have same **less than significant** impact.

Transportation and Circulation

Travel Demand

Alternative E would result in significant traffic impacts associated with level of service, increases to vehicle miles traveled and travel delay similar to Alternatives A, B and C. Modeled traffic impacts of Alternative E are provided below (the reader is referred to **Appendix C** for detailed

traffic analysis of this alternative). As identified above, this alternative includes major roadway improvements to the southern portion of the County as well as roadway improvements associated with the construction of a by-pass for SR 29 between St. Helena and Calistoga.

Alternative E Vehicle Miles Traveled with 2030 Roadway Network

Local VMT:	338,724
Regional VMT:	175,004
Total VMT:	513,728

Level of Service Impacts

- American Canyon Road - NB/EB and SB/WB - I-80 to Flosden Road - LOS F.
- Deer Park Road - NB/EB - Sanitarium Road (north) to Silverado Trail – LOS F.
- Deer Park Road - NB/EB - Silverado Trail to SR 29/128 - LOS F.
- Flosden Road - NB/EB and SB/WB - American Canyon Road to Napa/Solano County Line - LOS F.
- Napa Valley Highway - SB/WB - Kaiser Road to SR 29 - LOS F.
- Petrified Forest Road – NB/EB and SB/WB - Foothill Boulevard to Franz Valley School Road - LOS F.
- Silverado Trail - NB/EB - Oak Knoll Avenue to Hardman Avenue - LOS F.
- Silverado Trail - NB/EB - Sage Canyon Road to Yountville Cross Road - LOS F.
- Silverado Trail - SB/WB - Pope Street to Zinfandel Lane - LOS F.
- Silverado Trail - NB/EB - Calistoga City Limits to Lincoln Avenue - LOS E.
- Soscal Avenue – NB/EB and SB/WB - First Street to Silverado Trail - LOS F.
- SR12/121 - NB/EB and SB/WB – Cuttings Wharf Road to Stanly Road - LOS F.
- SR 12 – NB/EB - Lynch Road to Kelly Road - LOS F.
- SR 121 – NB/EB – Wooden Valley Road to Vichy Avenue – LOS F.
- SR 128 - NB/EB and SB/WB - Napa/Sonoma County Line to Tubbs Lane - LOS F.
- SR 128 – NB/EB - Tubbs Lane to Petrified Forest Road - LOS F.
- SR 128 - NB/EB and SB/WB - Petrified Forest Road to Lincoln Avenue - LOS F.
- SR 128 - NB/EB - Chiles-Pope Valley Road to Silverado Trail - LOS F.

6.0 PROJECT ALTERNATIVES

- SR 29 – NB/EB and SB/WB – Green Island Road to American Canyon Road – LOS F.
- SR 29 - NB/EB and SB/WB – Oakville Grade to Madison Street – LOS F.
- SR 29 - NB/EB and SB/WB – Rutherford Cross Road to Oakville Grade – LOS F
- SR 29 – NB/EB and SB/WB – Chaix Lane to Zinfandel Lane – LOS F.
- SR 29 - NB/EB and SB/WB – Lodi Lane to Deer Park Road – LOS F.
- SR 29 - NB/EB and SB/WB – Kelly Road to SR 12 – LOS F.
- SR 29 - NB/EB – SR 221 to Kelly Road – LOS F.
- SR 29 - NB/EB – SR 221 to SR 121/12 – LOS F.

In addition to the traffic analysis provided below, **Appendix C** includes a level of service analysis to reflect the effectiveness improvements to transit and transportation demand management strategies associated with reducing trips within Napa County (evaluated the effect of 3% and 10% reduction of all trips) and trips between Napa County and Solano, Sonoma and Lake counties (evaluated the effect of 3% reduction of all trips). The analysis identified the following nine roadway segments that would have improved level of service operation (as compared to Alternative A):

- Flodden Road (American Canyon Road to the Napa/Solano County line) From LOS E to D
- Silverado Trail (Oak Knoll Avenue to Hardman Avenue) From LOS F to E
- Silverado Trail (Pope Street to Zinfandel Lane) From LOS F to D
- Silverado Trail (Calistoga City Limits to Lincoln Avenue) From LOS E to C
- Soscol Avenue (First Street to Silverado Trail) From LOS F to E
- SR 121 (Wooden Valley Road to Vichy Avenue) From LOS F to D
- SR 128 (Tubbs Lane to Petrified Forest Road) From LOS F to D
- SR 29 (SR 221 to Kelly Road) From LOS F to E
- SR 29 (SR 121 to SR 121/12) From LOS F to C

Alternative E's impact is **significant and unavoidable** (even with implementation of mitigation measures MM 4.4.1a through j).

Roadway Safety and Emergency Access

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.9.4 and MM 4.131.1a and b as well as compliance with applicable provisions of County Code (Chapters 15.32 and 18.84) associated with the provision of adequate emergency access. Alternative E would result in a similar **significant and mitigable** impact would also be mitigated with implementation of the above mitigation measures and County Code provisions.

Conflicts with Existing Alternative Transportation Policies and Programs

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.4.1d through g associated with the provision of transit, pedestrian and bicycle facilities. Alternative E would result in a similar **significant and**

mitigable impact would also be mitigated with implementation of the above mitigation measures, though it would include the opportunity for ferry and rail service between the cities of Napa and Vallejo and Fairfield. As noted above under "Travel Demand", implementation of transit provisions under this alternative could improve the operation of nine roadway segments.

Create Additional Demand for Parking Facilities

This impact was identified as significant and mitigable for Alternatives A, B and C with the implementation of mitigation measures MM 4.4.4a and b associated with the provision of adequate parking facilities. Alternative E would result in the same **significant and mitigable** impact would also be mitigated with implementation of the above mitigation measures.

Biological Resources

Disturbance or Loss of Special Status Plant and Animal Species

As described under Impact 4.5.1, the County contains habitat conditions that support several special-status plant and animal species that occur throughout the County. **Tables 4.5-3 through 4.5-6** identify potential ranges of habitat disturbance that could occur under the General Plan Update for Alternatives A, B and C and anticipated vineyard development scenarios 1 through 4 that could result in the loss of special-status plant and animal species. **Table 4.5-7** identifies potential special-status plant and animal species that could be impacted. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Callstoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4, see **Tables 4.5-5 and 4.5-6** for anticipated habitat loss for scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.6.1b, MM 4.6.5a through c, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would avoid impacts and take of special-status species.

Loss of Sensitive Biotic Communities

As described under Impact 4.5.2, **Tables 4.5-5 and 4.5-6** identify potential conversion of land cover types that may contain sensitive biotic communities by Alternatives A, B and C and vineyard development scenario 1 through 4. Numerous sensitive natural communities are known from Napa County. There are likely to be additional areas with these unique communities since existing mapping represents only the known occurrences of these communities. Future land use activities including additional land development and vineyard conversion could affect both mapped and unmapped sites and oak woodlands. Site-specific habitat analysis may be necessary to determine the presence of additional sensitive biotic communities on undeveloped lands proposed for development. Of specific concern are vineyard development scenarios that could result in the conversion of large percentages of the total County acreage of several sensitive biotic communities (e.g., Tanbark Oak Alliance, Ponderosa Pine Alliance, Douglas Fir - Ponderosa Pine Alliance and Oregon White Oak Alliance) (see **Table 4.5-6**). This impact was identified as significant and unavoidable for Alternatives A, B and C.

6.0 PROJECT ALTERNATIVES

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4, see **Table 4.5-6** for anticipated sensitive biotic community loss under scenario 4). However, this alternative's impact would still be considered **significant and unavoidable** even with the implementation of mitigation measures MM 4.5.1b and c, MM 4.5.2a through c, MM 4.6.5a through c, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would reduce loss of sensitive biotic communities.

Loss of Wildlife Movement and Plant Dispersal Opportunities

As identified under Impact 4.5.3, further development under the proposed General Plan Update could result in disruption of regional wildlife movement as well as local wildlife movement. The County anticipates 10,000 to 15,000 acres of new vineyard development by the year 2030. Portions of this anticipated vineyard development would occur in the vicinity of the corridors identified in **Figure 4.5-6** (see **Appendix H** Figures 1 through 4 for vineyard development scenarios). However, this projected vineyard development is not currently anticipated to be concentrated in such a manner that would effectively block this movement. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.5.1a through c, MM 4.5.3a and b, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would retain wildlife movement corridors.

Conflict with Biological Resource Plans, Ordinances or Policies

There are no existing landscape-level Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within Napa County. Thus, implementation of the General Plan Update would not conflict with any such plans. The USFWS has adopted a number of Recovery Plans for certain federally listed species that are found within Napa County. As previously noted, the County anticipates 10,000 to 15,000 acres of new vineyard development by the year 2030 that would occur under Alternatives A, B and C. Portions of this anticipated vineyard development would occur within designated core areas identified in the recovery plans identified above.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.6.5a through c, MM 4.11.2a and b, MM 4.11.3a and b, MM 4.11.4, MM 4.11.5e and implementation of the Napa County Conservation Regulations that would mitigate biological resource impacts generally consistent with applicable recovery plans.

Fisheries

Sedimentation Impacts to Fisheries

As described under Impact 4.6.1, land use and development under the proposed General Plan Update would result in potential changes in sediment discharges within Napa County's watersheds that could degrade water quality in fish-bearing watercourses (see **Appendix F** for a description of fish-bearing watercourses). Upland and stream bank erosion delivered to the County's waterways can result in sediment/siltation of downstream streams and rivers. Increased siltation in salmonid bearing waterbodies can reduce intragravel flow in spawning grounds, fill in salmonid rearing pools, and reduce or eliminate food resources. Hence, there would be a significant impact on fisheries resources. As noted in **Appendix F**, these sedimentation impacts to the Napa River Watershed and Suisun Creek Watershed are limiting factors for the continued production of steelhead and Chinook salmon fisheries and are the focus of the Napa River TMDL for sediment. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). As identified in Section 4.11 and **Appendix H**, sediment load impacts would be the greatest under vineyard development scenario 4. However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.6.1a and b, MM 4.11.2a and b, MM 4.11.3a, MM 4.11.4 and implementation of the Napa County Conservation Regulations that would mitigate sedimentation impacts to fisheries.

Other Water Quality Impacts to Fisheries

Subsequent land use activities associated with urban, rural, agricultural and resource extraction can result in generating sources of nutrients and contaminants in County waterways (e.g., paint, solvents, cement, petroleum-based products, pathogens, fertilizers and pesticides). As noted in modeling results in **Appendix H**, new vineyard development has the potential to increase concentrations of nutrients, but the degree to which this impact was assessed is likely overestimated given the limitations of the modeling process and the fertilizer application rates specific to vineyard management and irrigation methods employed in Napa County. Never the less, excess pollutants can be toxic to fisheries as well as alter dissolved oxygen and temperature conditions in waterways that also impact fish. As noted above and in **Appendix F**, fisheries, particularly salmonids, are sensitive to changes in dissolved oxygen, high temperatures, and various pollutants. Elevated nutrients in creeks and rivers may lead to depleted dissolved oxygen (DO) concentrations. The reduction in DO concentrations can result in sub-lethal chronic effects or be lethal to salmonids and other fish species. Loss of riparian cover can result in increased temperatures throughout the watershed and temperature loading in the lower watershed. Increased water temperatures can result in sublethal chronic effects (e.g., reduced growth, disease, predation), and even on mortality, of salmonids. Temperature loading in the lower watershed can create potential barriers to upstream migration of adult spawners. Pesticides used in the County can flush or seep into streams. The numerous negative effects of pesticides on salmonids and other aquatic species are well-known. Non-point source pollution, such as oil, grease, and other pollutants from machinery, vehicles, and other sources, can flush or seep in streams, either directly or indirectly. Numerous studies have demonstrated the effects

6.0 PROJECT ALTERNATIVES

of such pollutants on fisheries resources and other aquatic organisms. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.6.1a, MM 4.11.2a, MM 4.11.4 and implementation of the Napa County Conservation Regulations.

Hydrologic Alteration Impacts to Fisheries

Land use and development, including vineyard and other agricultural development, under the proposed General Plan Update for Alternatives A, B and C would result a loss of natural ground cover and an increase in impervious areas that could result in a substantial increase in surface runoff and peak discharge. Existing storm drain systems, including fish-bearing watercourses, could be incapable of accommodating increased flows, potentially resulting in alteration of channel conditions from flooding events. Such events could result in: (a) scouring out channels, thereby suffocating salmonid eggs, alevins, and fry; (2) displacing fish, as flooding results in creeks overtopping the creek banks; and (3) harming fish later when oils, grease, and other pollutants from flooded streets, and other areas, flow or seep in the creeks. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.11.3a and b, MM 4.11.4 and MM 4.11.9 and b would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions when scour events occur and that subsequent land uses under the General Plan Update would not result in new or increased flood impacts.

Groundwater Interactions with Surface Water Flows

Land use and development, including vineyard and agricultural development, under the proposed General Plan Update Alternatives A, B and C could result in depletion of groundwater levels that could result in decreasing or eliminating stream baseflows (see Impact 4.6.4). Loss of stream baseflow could result in loss of intragravel flows to spawning beds in spring and adversely direct egg mortality; increases in temperature; reduction in flows that reduce summer rearing habitat, and localized water elevation changes that create barriers to intra-watershed movement and/or migration to and from Napa County watersheds. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this

alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.11.4 and MM 4.11.4 that would ensure protection of surface water flows.

Direct Impacts to Habitat

As identified under Impact 4.6.5, construction consistent with development proposed under the General Plan Update Alternatives A, B and C could require the crossing of streams or incursion into riparian habitats adjacent to streams, resulting in direct loss or degradation of aquatic habitats and/or adjacent riparian vegetation. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of mitigation measures MM 4.6.5a through c would avoid direct habitat impacts.

Interfere Substantially with Movement or Migratory Corridors

Water diversions (whether surface or groundwater) as well as drainage improvements and roadway crossing can result in creating barriers to anadromous fish migration to spawning and rearing areas, reduce or eliminate salmonid habitat and food resources (e.g., insects), and increase water temperatures. Additionally, stream crossings associated with development near streams can impede fish movement and migration if not properly designed. All of these impacts could result in restricting fisheries resources populations and, hence, have significantly negative impacts on the populations. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** with the implementation of Mitigation Measure MM 4.6.6 would avoid fish movement impacts.

Noise

Noise and Land Use Compatibility

Implementation of the proposed General Plan Update would place new noise sensitive uses adjacent to areas that could be exposed to noise generating sources. For example, all alternatives would permit continued construction of dwelling units within agricultural areas and/or adjacent to major roads, and Alternatives B and C would permit a second unit on parcels on the valley floor. This impact was identified as significant and mitigable for Alternatives A, B and C. Alternative E would result in similar **significant and mitigable** noise impact (with implementation of mitigation measures MM 4.7.1a through c).

6.0 PROJECT ALTERNATIVES

New Development Exposure to Groundborne Vibration

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Pacific Coast/Boca and Napa Pipe sites. Alternative E would have a **significant and mitigable** impact similar to Alternatives B and C given that it would involve similar redevelopment of the Pacific Coast/Boca and Napa Pipe sites.

Project Generated Traffic Noise Increases

This impact was identified as significant and unavoidable for Alternatives A, B and C associated with projected increases in traffic volumes and associated noise levels by the year 2030. Anticipated traffic noise impacts under Alternative E are shown in **Table 6.0-1**. Alternative E would result in a significant and unavoidable impact (

TABLE 6.0-1
 COUNTY ROADS AND HIGHWAYS NOISE MODELING ALTERNATIVE E YEAR 2030 CONDITIONS

Roadway	Segment Limit North/East	Segment Limit South/West	Number of Lanes	Alt E Daily Traffic Volume	Ldn at 100 Feet	2030 PM: Ldn at 100 feet	Distance to 70 Ldn contour (feet)	Distance to 65 Ldn contour (feet)	Distance to 60 Ldn contour (feet)
American Canyon Road	I-80	Flosden Road	2	31,516	71	71	130	270	580
Chiles Pope Valley Road	Pope Canyon Road	Lower Chiles Valley Road	2	5,013	61	61	2	50	110
Deer Park Road	Sanitarium Rd (North)	Silverado Trail	2	14,500	65	65	2	100	210
Deer Park Road	Silverado Trail	St. Helena Highway (SR 29/128)	2	13,572	68	68	80	170	360
Flosden Road	American Canyon Road	Napa/Solano County Line	2	33,359	70	70	100	220	480
Howell Mountain Road	Pope Valley Rd	N White Cottage Rd	2	4,683	60	60	2	2	90
Napa Vallejo Highway	Kaiser Rd	Highway 29(SR 29/12)	4	70,325	76	76	240	510	1090
Oak Knoll Avenue	Big Ranch Rd	Highway 29	2	4,850	62	62	2	60	140
Oakville Cross Road	Napa River	Highway 29	2	3,390	61	61	2	60	120
Old Sonoma Road	Buhman Avenue	Carneros Highway (SR 121/12)	2	5,711	65	65	2	90	200

6.0 PROJECT ALTERNATIVES

Roadway	Segment Limit North/East	Segment Limit South/West	Number of Lanes	Alt E Daily Traffic Volume	Ldn at 100 Feet	2030 PM: Ldn at 100 feet	Distance to 70 Ldn contour (feet)	Distance to 65 Ldn contour (feet)	Distance to 60 Ldn contour (feet)
Petrified Forest Road	Foothill Boulevard (SR 128)	Franz Valley School Road	2	21,951	65	65	2	100	220
Silverado Trail	Oak Knoll Ave	Hardman Ave	2	21,244	71	57	110	240	520
Silverado Trail	Sage Canyon Rd (SR 128)	Yountville Cross Rd	2	22,687	71	71	120	260	560
Silverado Trail	Pope St	Zinfandel Ln	2	22,924	71	71	120	250	540
Silverado Trail	Bale Lane	Deer Park Rd	2	13,998	67	71	60	140	290
Silverado Trail	Calistoga City Limits	Lincoln Ave (SR 29)	2	12,663	68	67	70	160	340
Soscol Avenue	First St	Silverado Trail	4	33,922	68	68	80	170	360
Spring Mountain Road	St. Helena City Limit	Langtry Road	2	12,660	60	68	2	2	100
State Highway 12/121	Cuttings Wharf Road	Stanely Road	2	37,260	73	60	160	350	750
State Highway 12	Lynch Road	Kelly Road	4	62,940	75	73	230	500	1070
State Highway 121	Wooden Valley Rd	Vichy Ave	2	10,515	62	75	2	60	140

6.0 PROJECT ALTERNATIVES

Roadway	Segment Limit North/East	Segment Limit South/West	Number of Lanes	Alt E Daily Traffic Volume	Ldn at 100 Feet	2030 PM: Ldn at 100 feet	Distance to 70 Ldn contour (feet)	Distance to 65 Ldn contour (feet)	Distance to 60 Ldn contour (feet)
State Highway 121	Circle Oaks Dr	Wooden Valley Rd	2	7,804	62	62	²	60	130
State Highway 121	Napa/Sonoma County Line	Old Sonoma Rd	2	38,402	72	62	130	290	620
State Highway 128	Napa/Sonoma County Line	Tubbs Lane	2	19,054	66	72	60	130	270
State Highway 128	Tubbs Ln	Petrified Forest Rd	2	15,352	67	66	60	140	300
State Highway 128	Petrified Forest Rd	Lincoln Ave (SR 29)	2	21,471	67	67	70	140	300
State Highway 128	Napa River	St Helena Hwy (SR 29)	2	7,624	62	67	²	60	130
State Highway 128	Chiles-Pope Valley Road	Silverado Trail	2	16,291	67	62	70	150	310
State Highway 128	Monticello Road (SR 121)	Berryessa-Knoxville Road	2	16,108	67	67	70	140	310
State Highway 128	Napa/Yolo County Line	State Highway 121	2	16,503	67	67	70	150	320
State Highway 29	Napa/Lake County Line	Tubbs Lane	2	7,324	62	67	²	60	130
State Highway 29	Green Island Rd	American Canyon Rd	4	61,175	74	62	190	400	870

6.0 PROJECT ALTERNATIVES

Roadway	Segment Limit North/East	Segment Limit South/West	Number of Lanes	Alt E Daily Traffic Volume	Ldn at 100 Feet	2030 PM: Ldn at 100 feet	Distance to 70 Ldn contour (feet)	Distance to 65 Ldn contour (feet)	Distance to 60 Ldn contour (feet)
State Highway 29	California Dr	Oak Knoll Ave	4/2	47,534	72	74	140	300	640
State Highway 29	Oakville Grade	Madison St	2	42,857	73	72	150	320	690
State Highway 29	Rutherford Cross Rd (SR 128)	Oakville Grade	2	37,041	72	73	140	300	640
State Highway 29	Chaix Ln	Zinfandel Ln	2	38,267	72	72	140	300	650
State Highway 29	Lodi Lane	Deer Park Rd	2	28,914	71	72	110	240	520
State Highway 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	4	110,457	78	71	360	770	1660
State Highway 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	5	90,322	77	78	300	650	1400
State Highway 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy (SR 121/12)	4	73,449	76	77	260	570	1220
State Highway 29	Imola Ave (SR 121)	Carneros Hwy (SR 121/12)	4	44,541	74	76	190	410	880
Tubbs Lane	Highway 29	Highway 128	2	20,939	70	74	100	210	440
Wooden Valley Road	Monticello Rd (SR 121)	Napa/Solano Co Line	2	5,666	63	70	2	70	150

6.0 PROJECT ALTERNATIVES

Roadway	Segment Limit North/East	Segment Limit South/West	Number of Lanes	Alt E Daily Traffic Volume	Ldn at 100 Feet	2030 PM: Ldn at 100 feet	Distance to 70 Ldn contour (feet)	Distance to 65 Ldn contour (feet)	Distance to 60 Ldn contour (feet)
Yountville Cross Road	Silverado Trail	Yountville Town Limits	2	4,864	62	63	²	60	140
Zinfandel Lane	Silverado Trail	St Helena Hwy (SR 29&128)	2	5,502	65	62	²	90	200

Notes:

Vehicle mix for all roadways are assumed to be 90% automobiles, 5% medium trucks, and 5% heavy trucks.²

¹ Roadway speeds unavailable; assumed speed.

² Contour distance is within 50 feet of the roadway centerline.

Shaded boxes indicate where Ldn were at 100 feet in 2030 exceeds Ldn at 100 feet conditions.

Source: Illingworth & Rodkin 2006

Roadway Improvement Impacts to Noise-Sensitive Uses

This impact was identified as less than significant to Alternative A and significant and unavoidable for Alternatives B and C associated with the proposed roadway improvements in the southern portion of the County (e.g., widening of SR 12). Alternative E would have a **significant and unavoidable** impact given that it would involve roadway improvements to the southern portion of the County as well as improvements to SR 29 between St. Helena and Calistoga.

Project Generated Non-Transportation Noise Sources

This impact was identified as less than significant for Alternatives A, B and C given that normal agricultural activities are considered under the County's Right-to-Farm Ordinance and the sounds they produce are not considered undesirable as long as reasonable steps are taken to avoid conflicts. The Napa County Noise Ordinance would also be applicable to new non-transportation noise sources. As identified in **Table 4.7-8**, the Noise Ordinance includes noise performance standards that are intended to protect residential and other noise-sensitive land uses generally consistent with the noise-related compatibility of the current General Plan. Continued implementation of both the Right-to-Farm Ordinance and Noise Ordinance would ensure that potential noise conflicts with new non-residential uses are avoided. Alternative E would result the same **less than significant** impact.

Project Generated Construction Noise

This impact was identified as less than significant for Alternatives A, B and C. Typical construction equipment noise levels are shown in **Tables 4.7-6** and **-7**. Typically, small residential, commercial, or office construction projects do not generate significant noise impacts when standard construction noise control measures are enforced at the construction site and when the duration of the noise generating construction period is limited to one construction season (typically one year) or less. The Napa County Noise Ordinance specifies noise limits (see **Table 4.7-9**) for construction activities and limits construction to within the hours of 7 a.m. and 7 p.m., which avoids temporary noise conflicts with noise-sensitive land uses by avoiding noise-sensitive hours (7:00 p.m. to 7:00 a.m. when sleep generally occurs). Alternative E would result the same **less than significant** impact.

Noise and Land Use Compatibility (Aircraft)

This impact was identified as significant and mitigable for Alternatives A, B and C associated with the Angwin-Virgil O Parrett Field. Near Angwin-Virgil O Parrett Field in Angwin, there are parcels within proximity of the airport that would permit residential uses (one house per parcel plus a second unit), even though they are within land use compatibility zones that would normally preclude residential use. In addition, future residential uses could also be exposed to noise impacts from single event noise from individual aircraft. Alternative E would result in the same **significant and mitigable** impact that would be mitigated through implementation of Mitigation Measure MM 4.7.7.

Air Quality

Consistency with Air Quality Regulations

As identified under Impact 4.8.1, implementation of the General Plan Update (under all alternatives) would result in growth that exceeds ABAG growth projections used by the BBAQMD

for the development of attainment plans. In addition, the General Plan Update does not include adequate clean air transportation control measures. This impact was identified as significant and unavoidable for Alternatives A, B and C. Alternative E would result in a similar impact to Alternative C given that it would exceed ABAG growth projections and does not include adequate clean air transportation control measures. Alternative E's impact would be **significant and unavoidable** even with the implementation of mitigation measures MM 4.8.1a through d.

Conflicts with Particulate Matter Attainment Efforts

As identified under Impact 4.8.2, implementation of the General Plan Update (under all alternatives) would contribute to particulate matter emissions to the air basin that already exceeds state ambient air quality standards. Alternative E would result in particulate matter emissions similar to Alternative C by the year 2030. Alternative E's impact would be **significant and unavoidable** even with the implementation of mitigation measures MM 4.8.2.

Grading and Temporary Construction

This impact was identified as significant and mitigable for Alternatives A, B and C. Construction activities such as demolition, grading, construction worker travel to and from project sites, delivery and hauling of construction supplies and debris to and from development sites, and fuel combustion by on-site construction equipment would generate pollutant emissions. Alternative E would generally have the greatest potential for land disturbance, given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). Alternative E's impact would be **significant and mitigable** with the implementation of mitigation measures MM 4.8.3a through d.

Odors

This impact was identified as significant and mitigable for Alternatives A, B and C. Implementation of the General Plan Update (under all alternatives) may involve the placement of sensitive receptors (e.g., new residences) near wastewater treatment ponds, composting facilities, sanitary landfills or transfer facilities, or similar uses. Localized sources of odors could include painting/coating operations or restaurants, including fast-food restaurants. Alternative E would result in the same **significant and mitigable** impact that would be mitigated with the implementation of Mitigation Measure MM 4.8.4.

Exposure to Air Toxic Contaminants

The placement of sensitive receptors (e.g., new residences) near freeways, truck distribution centers, large warehouses, large gasoline fueling stations, heavy industrial sites, corporation yards, bus stations, quarries and dry cleaners are typical situations where sensitive receptors could be exposed to toxic air contaminants (TACs). This impact was identified as significant and mitigable for Alternative A and significant and unavoidable for Alternatives B and C as a result of major roadway improvements in the southern portion of the County could move mobile sources of TACs closer to existing sensitive receptors. Alternative D would result in a **significant and unavoidable** impact given the roadway improvement proposed under this alternative (even with the implementation of Mitigation Measure MM 4.8.5).

6.0 PROJECT ALTERNATIVES

Carbon Monoxide Concentrations along Roadways

This impact was identified as less than significant for Alternatives A, B and C. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Since the early 1990s, carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area. As a result, the region has been designated as attainment for the standard. Based on technical analysis of traffic conditions under Alternatives A, B and C, no violations of state or federal standards were identified. Given that Alternative E would in a similar extent of development by year 2030 as Alternative C, it would result the same **less than significant** impact.

Potential Increase in Long-Term Atmospheric Greenhouse Gas Emissions

Projected population growth and an increase in the County's wine making operations, resulting from implementation of the General Plan Update (under all alternatives), may lead to an increase in GHG emissions. Research and experience indicate that increased population and industrial activities result in an increase in GHG emissions. Increased GHG emissions from the unincorporated portion of the County (in combination with emissions from the cities in the County and surrounding counties) are expected from these sectors by the year 2030, which could conflict with the state efforts to reduce GHG emissions to 1990 levels as set forth in AB 32. This impact was identified as significant and unavoidable for Alternatives A, B and C. Alternative E would result in approximately 11,410 metric tons of greenhouse gas emissions generated by residential development projected by year 2030. However, this alternative would also result in a **significant and avoidable** impact (even with implementation of Mitigation Measure MM 4.8.7).

Human Health/Risk of Upset

Routine Transport of Hazardous Materials

This impact was identified as less than significant for Alternatives A, B and C. The transportation of hazardous materials on area roadways is regulated by the California Highway Patrol, U.S. Department of Transportation (Hazardous Materials Transportation Act) and Caltrans, and use of these materials is regulated by the DTSC (22 Cal. Code Regs §§ 66001, et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards and regulations designed to avoid hazardous material releases. All existing and future development in the unincorporated County would be required to comply with federal, state and local regulations regarding the handling, transportation, disposal, and clean-up of hazardous materials. Alternative E would result in the same **less than significant** impact.

Release and Exposure to Hazardous Materials

As identified under Impact 4.9.2, hazardous materials used during construction and operational activities throughout the County under the proposed General Plan Update (under all alternatives) may expose nearby residents and other sensitive receptors to toxic emissions. Electrical transformers and industrial products containing polychlorinated biphenyls (PCBs) and heavy metals, as well as persistent residual chemicals including pesticides, herbicides, and fertilizers have the potential to pose a health and safety risk via accidental release, misuse or historic use in the County. This impact was identified as significant and mitigable for Alternatives A, B and C. Alternative E would result in a similar **significant and mitigable** impact that would be

addressed through implementation of mitigation measures MM 4.8.5 and MM 4.9.2 that would address discovered hazardous materials and potential exposure to toxic air contaminants.

Airport Hazards

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the proposed redevelopment of the Napa Pipe site. Alternative E would have a similar **significant and mitigable** impact given that it would involve redevelopment of the Napa Pipe site.

Interference With and Adopted Emergency Response or Evacuation Plan

This impact was identified as less than significant to Alternative A and significant and mitigable for Alternatives B and C associated with the intensification of development potential under these alternatives (e.g., Pacific Coast/Boca and Napa Pipe sites). Alternative E would have a **significant and mitigable** impact given that it would involve intensification of development that is proposed under Alternatives B and C.

Wildland Fire

This impact was identified as less than significant for Alternatives A, B and C. The "Napa Firewise" program is currently, and would continue to be, implemented under Alternatives A, B and C in the proposed General Plan Update as well as County Code provisions associated building requirements (Chapter 15.32) and fire risk zones (Chapter 18.84) and Public Resources Code Sections 4290 and 4291. "Napa Firewise" is a community-based fire awareness program to educate the residents of Napa County on the dangers wildland fire poses to them and their community. The program also provides steps homeowners and landowners can take to protect themselves, their family and neighbors and to reduce threats to their property from wildland fires. County Code and Public Resources Code provisions provide development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access, water for fire fighting and other associated standards. Alternative E would result in the same **less than significant** impact.

Geology and Soils

Seismic Ground Shaking

The hazards related to ground shaking include the risk of loss, injury or death. Buildings that were constructed within the County prior to 1930, including unreinforced masonry (URM) buildings that have not been seismically retrofitted are most likely to have structural failure or collapse occur. Buildings that have been seismically retrofitted would have a decreased chance of failure. However, even structurally enhanced buildings and newer buildings could still experience significant damage and present a hazard to occupants. The San Francisco Bay Area has a 62% chance of experiencing a magnitude 6.7 or larger earthquake by the year 2032 (Napa County, BDR 2005). Smaller magnitude earthquakes (between magnitudes 6.0 and 6.7), capable of considerable damage depending on proximity to urban areas, have about an 80% chance of occurring in the San Francisco Bay Area by 2032. A large earthquake in the San Francisco Bay Area would have a regional effect and could impact the future development and land uses that would occur in the County irrelevant of the adoption of the proposed General Plan Update. This impact was identified as significant and unavoidable under Alternatives A, B and C.

6.0 PROJECT ALTERNATIVES

Alternative E would result in the similar impacts to Alternatives B and C given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa. This alternative's impact would be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.1 in addition to the provisions of UBC and CBC and County Code Chapter 18.88).

Seismic Related Ground Failure

Seismic related ground failures include, surface fault rupture, lateral spreading, lurching, and liquefaction. As discussed in Impact 4.10.1 the San Francisco Bay Area has a 62% chance of experiencing a magnitude 6.7 or larger earthquake by the year 2032 and would result in region-wide effects. Various kinds of seismic related ground failures can result from major earthquakes. The type of resulting ground failure depends on several factors including earthquake magnitude, duration and amplitude of seismic energy at the failure site, soil type, soil saturation, groundwater depth, steepness and topography. Seismic related ground failure can result in damage to structures, infrastructure, and nonstructural building elements. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.2 in addition to the provisions of UBC and CBC and County Code Chapter 18.88 and 18.108).

Tsunamis and Seiches

This impact was identified as less than significant for Alternatives A, B and C. Potential for damage caused by tsunamis is considered low given the County is not directly exposed to the open ocean and lack of bay front. Currently, risk analysis of tsunamis has been limited to the evaluation of the ocean sides of San Francisco and San Mateo counties. Seiches would be limited to the larger reservoirs in the County (e.g., Lake Berryessa, Bell Canyon Reservoir, Lake Hennessey, Rector Reservoir and Milliken Reservoir). However, the potential for the loss of life and damage to structures is considered low given that development is largely restricted immediately along the shorelines of these reservoirs given their use as municipal water supply sources and County General Plan land use designations and zoning. Alternative E would result in the same **less than significant** impact.

Landslides

Landslides in the Napa Valley subregion are predominantly located on the hillsides northeast of American Canyon. Areas that are prone to landslides around Napa Valley are generally located on the hillsides east of Yountville and St. Helena as well as the hillsides west of Conn Creek, particularly along SR 128. Landslides in the Interior Valleys subregion are predominantly located on the hillsides surrounding Pope Valley, Hardin Creek, Capell Creek, Atlas Peak Road, and SR 121. Landslides in the Barryessa/Knoxville subregion are predominantly located on the hillsides west of Lake Barryessa, and in the most northeastern portion of Napa County, which are among the most landslide prone hillsides in Napa County. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and unavoidable** (even with implementation of the Mitigation Measure MM 4.10.4a through c in addition to the provisions of Napa County Conservation Regulations (County Code Chapter 18.108)).

Subsidence and Settling

Subsidence and settlement result from the same physical processes. Settlement is usually considered to occur within a relatively short time frame and within a small area, for instance on the project scale. Subsidence takes place over a longer time frame and a broader regional area. Subsidence/settlement can occur differentially; that is, one area or location subsides or settles more than another. The results of subsidence/settlement, especially when it occurs differentially, can be quite damaging. This impact was identified as significant and unavoidable under Alternatives A, B and C.

Alternative E would result in similar impacts as Alternatives B and C given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). This alternative's impact would be considered **significant and avoidable** (even with implementation of the Mitigation Measure MM 4.10.1 and MM 4.10.2 in addition to the provisions of Napa County Conservation Regulations (County Code Chapter 18.108)).

Expansive Soils

This impact was identified as less than significant for Alternatives A, B and C. Expansive soils exist at a variety of locations through the County, as indicated in the BDR Soil Texture Classes map 1-16. In the Napa Valley subregion, clay-rich soils predominantly occur at low elevations near Yountville and the City of Napa. In the Interior Valleys subregion, clay-rich soils predominantly occur in the Pope Valley and surrounding Suisun Creek. In the Barryessa/Knoxville subregion, clay-rich soils predominantly occur east and southeast of Lake Barryessa. If expansive soils are initially anticipated through map review, their actual presence or absence should be determined prior to construction by site-specific geotechnical investigations. When this is done, special engineering methods can be used to reduce the stresses on buildings and utility lines. Once identified, the adverse effects of expansive soils can be avoided through proper drainage, subsoil preparation, and foundation design. When expansive soils occur on a hill slope, they undergo the slow seasonal down slope movement known as *soil creep*. This down slope process adds to the potential for these soils to damage improvements. Geotechnical investigations would identify this potential and engineering methods for structural development based on UBC and CBC standards will be implemented to avoid damage that would otherwise result from expansive soil hazards and soil creep. Site specific geotechnical investigations required by the County and adherence to the UBC and CBC would reduce the impacts of expansive soils on new development. Alternative E would result in the same **less than significant** impact.

6.0 PROJECT ALTERNATIVES

Septic System Operation

This impact was identified as less than significant for Alternatives A, B and C. Title 13, Division II of the County Code establishes specific design, location, capacity and testing standards for the installation of septic systems that ensure proper operation and avoidance of impacts to groundwater resources. When appropriate field-testing is conducted and current system location and design standards are used combined with post construction monitoring and maintenance, the potential adverse impacts to septic suitability of soils can be reduced to acceptable levels. Existing County regulations for septic systems would reduce the potential adverse impacts on surface and ground water resulting from septic suitability of soils. Alternative E would result in the same **less than significant** impact.

Mineral Resources

This impact was identified as less than significant for Alternatives A, B and C. Implementation of the proposed General Plan Update (under all alternatives) would largely retain the current land use patterns and would not result in the expansion of substantial new rural or urban land uses in the County that would preclude future mineral extraction. Alternative E would result in the same **less than significant** impact.

Hydrology and Water Quality

Non-Point Source Pollution from Urban Runoff

Development and maintenance of land uses such as residential, commercial, industrial, and public facilities (e.g., roads, schools, maintenance and corporation yards, water supply, and wastewater facilities) creates additional impervious surfaces and generates additional automobile use. Development allowed by the General Plan Update (under all alternatives) could also result in increased use of materials that can impair water quality, such as fertilizers and pesticides (e.g., for landscaping), construction chemicals (e.g., paint, solvents, cement, petroleum-based products), and toxic chemicals (e.g., for industrial uses or energy production). Water, typically as rainfall, moves over these impervious surfaces, where it picks up, carries away natural (e.g., sediment) and human-made pollutants (e.g., oil, pesticides, etc.) from paved or impervious surfaces, and deposits them into streams, rivers, wetlands, and eventually coastal waters.

As part of the County's compliance with the requirements of the NPDES stormwater permitting program, the County adopted Ordinance No. 1240 (Stormwater Management and Discharge Control) on June 22, 2004. The purpose of this ordinance is to protect water resources and improve water quality through the use of BMPs and meet the requirements of the Clean Water Act, Porter-Cologne Water Quality Act and the Basin Plan. Specifically, Section 16.28.100 requires the identification and use of BMPs to control the volume, rate and potential pollutant discharge from new development and redevelopment projects, existing businesses and other activity that may cause or contribute to stormwater pollution. The County currently accepts the California Stormwater Quality Association (CASQA) California Stormwater Best Management Practice Handbooks as effective standards for implementation and installation of stormwater pollution prevention measures, which provides detailed information on BMPs associated with use and design for maximum treatment effectiveness. This impact was identified as less than significant for Alternatives A, B and C. Alternative E would result in the same **less than significant** impact.

Construction-Related Soil Erosion and Sedimentation

As identified under Impact 4.11.2, construction of land uses allowed under the proposed General Plan Update could result in the construction of a wide range of uses, including residential, commercial and industrial buildings, public facilities, and agricultural-related uses (e.g., processing, support, and visitor-serving uses) amongst others. Erosion and sedimentation resulting from construction activities in the unincorporated parts of Napa County could represent a significant source of particulate pollution conveyed in storm water runoff. Grading and other earthmoving activities could alter drainage patterns and therefore have the potential to accelerate soil erosion well above natural background rates. Vegetative cover, which acts to stabilize the soil, would generally be removed from areas where earthwork and grading activities would occur during the construction. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of the Mitigation Measure MM 4.11.2a and b that provide for continued implementation of effective County Code provisions and use of BMPs [as further documented under **Appendix I**]).

Agricultural and Resource Uses

As described under Impact 4.11.3, continued agricultural land uses and potential resource extraction under the proposed General Plan Update could potentially be a significant source of soil erosion and sedimentation of downstream waterways, especially when such land use activities occur on moderate to steep slopes or on highly erodible soils. It should be noted that this continued growth of agricultural uses (vineyards especially) in the County is expected to occur whether or not the Napa County General Plan is updated. These land use activities could also be sources of nutrients and contaminants from application of agro-chemicals used in agricultural operations (e.g., fertilizers and pesticides) containing nitrogen and phosphorous in agricultural runoff. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). As identified in Section 4.11 and **Appendix H**, sediment load impacts would be the greatest under vineyard development scenario 4. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a and b, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and use of BMPs [as further documented under **Appendix I**]).

Water Quality Impacts Associated with Proposed Ministerial Process

As described under Impact 4.11.4, Alternatives B and C propose the establishment of a ministerial process for environmentally superior vineyard development projects that meet certain protective criteria. Impacts associated with this would include water quality, geologic stability,

6.0 PROJECT ALTERNATIVES

drainage and flooding, biological resources and cultural resources. This impact was identified as significant and mitigable for Alternatives B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given it would result in erosion control plan consideration for activities on slopes up to 35% with BMPs ministerial (i.e., vineyard development scenario 4). As identified in Section 4.11 and **Appendix H**, sediment load impacts would be the greatest under vineyard development scenario 4. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.11.4 that restrict the use of the ministerial process and provide for continued implementation of effective County Code provisions and use of BMPs [as further documented under **Appendix I**]).

Groundwater Level and Decline and Overdraft

As identified under Impact 4.11.5, urban, rural and agricultural development and land use activities would increase groundwater demands and have impacts on groundwater storage. Modeling results show most evaluation areas with decreases in groundwater discharge to the channel network (baseflow), while in the Berryessa and Suisun areas, baseflow increased (see **Appendix H**), while Appendix J identifies that cumulative water demands for the years 2020 and 2050 in the Napa Valley would exceed current water supplies (including groundwater resources). This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative E would result in similar impacts as Alternative C given the extent of development anticipated. This alternative's impact would be considered **significant and unavoidable** (even with implementation of mitigation measures MM 4.11.4 and MM 4.11.5a through e).

Well Competition and Adverse Well Interference

Groundwater wells in close proximity or adjacent to each other can be thought of as competing for the same groundwater resource, especially in areas where the availability of groundwater is limited, in areas of declining groundwater and overdraft conditions, and in areas of poorly producing aquifer materials, such as hard-rock aquifers. When a well is pumped, a portion of the aquifer around it is dewatered or lowered, creating what is known as a cone of depression. Adjacent wells with overlapping cones of depression may have problems getting water if water levels are lower than the well pumps. Where such competition is significant it may affect the performance and delivery of water to the adjacent well(s). This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the potential for similar impacts from well interference. This alternative's impact would be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.11.5e that provides for performance standards to avoid well interference).

Changes to Drainage Patterns Leading to Increased Runoff and Streambank Erosion

Land uses and development under the proposed General Plan Update would result in a gradual increase in impervious cover, especially in urban areas and some of the rural areas. Typically, increases in impervious cover result in an increase in stormwater runoff, higher peak stream discharges, and decreased groundwater recharge. Minor increases in tributary flows can also exacerbate creek bank erosion and/or cause destabilizing channel incision by altering the two-year or channel-forming flow, to which most creeks adjust by processes such as channel widening and deepening. Bank instability and bank failure often results in drainage systems

where the “channel-forming” flow has been substantially altered. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). As identified in Section 4.11 and **Appendix H**, sediment load impacts would be the greatest under vineyard development scenario 4. However, this alternative’s impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and BMPs and use of performance standards to retain pre-development peak flow conditions).

Changes to Drainage Patterns Leading to Increased Runoff and Hillside Erosion

As identified under Impact 4.11.8, subsequent urban and rural development, vineyard development, other agricultural activities and resource extraction activities in the County could result in alterations to existing drainage patterns, increasing runoff and hillside erosion. Agricultural land use practices can also alter the infiltration properties of surface soils (sometimes beneficially) and can also have similar, but more often smaller, effects on the hydrologic cycle. Increased peak discharges resulting from changes in land use have the potential to degrade water quality by creating erosive velocities and higher bank shear stress, which can ultimately cause bank and bed erosion and/or sedimentation in drainages and streams. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). As identified in Section 4.11 and **Appendix H**, sediment load impacts would be the greatest under vineyard development scenario 4. However, this alternative’s impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.2a, MM 4.11.3a and b and MM 4.11.4 that provide for continued implementation of effective County Code provisions and BMPs and use of performance standards to retain pre-development peak flow conditions).

Increased Flood Risk from Drainage System Alteration

Land uses and development consistent with the proposed General Plan Update could increase runoff and result in adverse modifications to local and regional hydrology. While the majority of future urban development would be concentrated in the cities and existing urban and rural areas, growth of agricultural, rural and urban uses in the unincorporated area of the County may necessitate the construction of new drainage facilities for stormwater conveyance and management systems on tributaries and watershed mainstems. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth, and provide suitable flood protection. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in similar impacts as Alternatives B and C, given the extent of development proposed under this alternative. This alternative’s impact would be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.3a, MM 4.11.4

6.0 PROJECT ALTERNATIVES

and MM 4.11.9 that provide for the use of performance standards to retain pre-development peak flow conditions).

100-Year Flood Hazard Areas

This impact (Impact 4.11.10) was identified as less than significant for Alternatives A, B and C. The proposed General Plan Update generally would continue to allow new development and redevelopment within unincorporated areas designated by FEMA as Special Flood Hazard Areas, consistent with the County Floodplain Management Ordinances and the Code of Federal Regulations for the National Flood Insurance Program. The current County Code does not allow development within a defined floodway (unless within footprint of existing structure or certified by registered engineer or architect to not result in any increase in base flood elevation), and does not allow development in the floodplain if the project would increase the base flood elevation by more than one foot, except in special cases. The current County Code requires residential structures built within a FEMA designated Special Flood Hazard Area to be elevated at least one foot above the elevation of the 100-year flood level to protect these structures from flood damage. Napa County and FEMA federal floodplain management guidelines and regulations allow placement of fill within the floodplain to raise building pads above the 100-year flood level as long as it is not within the floodway or the base flood elevation is not raised greater than 1 foot. New nonresidential buildings must either meet this criterion or provide an alternate method of flood proofing that is certified by a registered engineer and approved by the Department of Public Works. Alternative E would result in the same **less than significant** impact.

New Vineyard Development and 100-Year Flooding

Conversion of existing land uses to new vineyard development, due to drainage diversions, changes to cover crop, and removal of vegetation, can produce greater overland runoff to the channel network. **Table 4.11-6** shows the gaging sites where flows and water surface elevations increased significantly—at two locations on the Napa River, and at Canon Creek's junction with Bell Creek, on the valley floor (based on hydrologic modeling of anticipated vineyard development by the year 2030 [see **Appendix H**]). This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in similar impacts as Alternatives A, B and C, given the extent of development proposed under this alternative. This alternative's impact would be considered **significant and mitigable** (with implementation of mitigation measures MM 4.11.9 would ensure that subsequent land uses under the General Plan Update would not result in new or increased flood impacts, while MM 4.11.3a and MM 4.11.4 would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions).

Cultural and Paleontological Resources

Archaeological (Prehistoric and Historic) Resources, Human Remains, and Paleontological Resources

Future development in the County could impact archaeological resources, human remains, and paleontological resources whether or not the General Plan is updated. Parts of Napa County have been subject to archaeological and historical investigations, but the entire County has not been subjected to detailed investigation. Nonetheless, the presence of 1,138 known archaeological sites in Napa County suggests that the County should be considered sensitive for

prehistoric and historic cultural resources. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its potential extent of land disturbance associated with its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development. However, this alternative's impact would still be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.12.1 would identify significant archaeological resources, human remains, and paleontological resources prior to implementation of a project and would ensure appropriate actions when resources are encountered).

Historic Architectural Resources

Future development in the County could impact historic architectural resources. **Table 4.12-2** identifies known historic resources in the County that are listed under the California Register of Historic Resources and/or the National Register of Historic Places. In addition, it appears that additional historic architectural features could be eligible for inclusion in the NRHP and/or the CRHR if they were subjected to research to formally determine their historic significance. The scope and distribution of development assumed under all alternatives could cause potentially significant impacts to identified and as yet unidentified historic and architectural resources. This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its potential extent of land disturbance associated with its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development. However, this alternative's impact would still be considered **significant and unavoidable** (with implementation of Mitigation Measure MM 4.12.2 would identify significant historic architectural resources prior to implementation of a project and would afford and opportunity to take appropriate action to protect a resource).

Public Services and Utilities

Fire Protection and Emergency Medical Services

Subsequent development and growth in the County would increase the demand of fire protection services in the County. As described in Section 3.0 (Project Description), the proposed General Plan Update (under all alternatives) would largely retain existing land use patterns and would focus development into and adjacent to existing cities and areas designated for rural and urban development. In addition, the County is projecting 10,000 to 15,000 acres of new vineyard development as well as associated winery development and other agricultural uses that would also add to the demand for fire protection. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in similar impacts as Alternatives B and C given its land use map. This alternative's impact would be considered **significant and mitigable** (with implementation of mitigation measures MM 4.13.1.1a through c as well as compliance with County Code (Chapters 15.32 and 18.84) and Public Resources Code Sections 4290 and 4291 (e.g., provisions associated with development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access, water for fire fighting) would ensure that subsequent

6.0 PROJECT ALTERNATIVES

development under the proposed General Plan Update would not adversely impact fire protection services).

Law Enforcement Services and Standards

As identified under Impact 4.13.2.1, continued growth and development would increase the demand for law enforcement services. This impact was identified as less than significant for Alternative A and significant and mitigable for Alternatives B and C as a result of proposed intensification of growth proposed under these alternatives. Alternative E would result in similar impacts as Alternatives B and C given its land use map. This alternative's impact would be considered **significant and mitigable** (with the implementation of mitigation measures MM 4.13.2.1a and b that would ensure dense development proposals do not impact law enforcement services).

Water Supply Impacts

As shown in **Tables 4.13.3-36** and **4.13.3-37**, future growth projected in the Napa Valley is anticipated to exceed current and projected water supply sources under year 2020 and 2050 and would further exacerbate groundwater conditions for MST and Carneros basins. In addition, the cities of American Canyon, St. Helena and Calistoga (some which currently provide or may provide in the future water supply to adjoining unincorporated areas) are projected to experience water treatment plant production deficiencies during maximum day demands for years 2020 and 2050 (see Table 4 of Technical Memorandum No. 7 of the 2050 Napa Valley Water Resources Study [**Appendix J**]). This impact was identified as significant and unavoidable for Alternatives A, B and C.

Alternative E would result in similar water supply impacts as Alternatives B and C given its land use map. Water demands under Alternative E would be 2,462 acre-feet annually for residential uses and 3,398 acre-feet annually for non-residential uses by year 2030. This alternative's impact would still be considered **significant and unavoidable** (even with implementation of mitigation measures MM 4.11.4, MM 4.11.5a through e, MM 4.13.3.1a and b and County Code (Chapters 13.04, 13.08, 13.12 and 13.15)).

Sewer Treatment and Conveyance

As noted under Impact 4.13.4.1, subsequent development under the proposed General Plan Update would increase the demand for sewer service County-wide. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in similar wastewater service demand impacts as compared Alternatives B and C. Wastewater service demands under Alternative D would be 2.39 million gallons per day by year 2030. This alternative's impact would be considered **significant and mitigable** (with implementation of Mitigation Measure MM 4.13.4.1 and County Code associated with sewer system design and operation).

Solid Waste Service

As identified under Impact 4.13.5.1, the Keller Canyon Landfill had 64.8 million cubic yards of remaining capacity and has enough permitted capacity to receive solid waste through 2030, which is its anticipated closure date (California Integrated Waste Management Board, April 2006). In addition, the County would continue to implement the Source Reduction and Recycling Element (SRRE), Non-disposal Facility Element (NDFE) and Household Hazardous Waste Element (HHWE) that are included in the County's Integrated Waste Management Plan, which

would ensure continued compliance with AB 939 under the proposed General Plan Update (all alternatives). This impact was identified as less than significant for Alternatives A, B and C. Alternative E would result in 37,307 tons per year of solid waste by the year 2030 and would result in the same **less than significant** impact.

Public School Facilities

Growth and development under the proposed General Plan Update by the year 2030 would increase the demand for public schools. California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation. In Napa County, project applicants proposing new building square footage are directed to the applicable school district to pay required fees prior to permit issuance. This impact was identified as less than significant for Alternatives A, B and C. Alternative E would result in the same **less than significant** impact.

Provision of Electric and Natural Gas Resources

As identified under Impact 4.13.7.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for electricity and natural gas services. Subsequent development under the each of the alternatives would be required to comply with recently adopted changes to Title 24 of the California Code of Regulations regarding energy efficiency that were effective in September 2005. This impact was identified as less than significant for Alternatives A, B and C. Alternative E would result in the same **less than significant** impact.

Social Services

As identified under Impact 4.13.8.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for social services. Continued growth in the unincorporated area of the County under the General Plan Update (all alternatives) would increase the demand for social services identified in **Table 4.13.8-1**. As indicated in **Table 4.13.8-1**, Cal-Works and CPS would need to add additional staff members to meet any increase in demand, as these departments are currently understaffed. The only planned improvement that has the potential to result in physical impacts is the County's Public Assistance Program, which plans to add an express lane; however, this improvement would occur at the existing facility and little or no impacts on the physical environment are anticipated. This impact was identified as less than significant for Alternatives A, B and C. Alternative E would result in the same **less than significant** impact.

Parks and Recreation

As identified under Impact 4.12.9.1, growth and development under the proposed General Plan Update by the year 2030 would increase the demand for recreation opportunities and facilities. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in similar recreation demand impacts as Alternatives B and C given its land use map. This alternative's impact would be considered **significant and mitigable** (with

6.0 PROJECT ALTERNATIVES

implementation of mitigation measures MM 4.13.9.1a through c that ensures that recreational facilities are provided to meet demand of growth).

Visual Resources

Degradation of the Quality of Visual Character Associated with Designated Scenic Resources Within the County

Development projected under the proposed General Plan Update has the potential to result in significant impacts to designated scenic resources (ridgelines, etc.) identified in the current General Plan as well as in the Napa County Viewshed Program. Impacts could include placement of structures or other improvements, grading, and roadway placement on ridgelines and along County designated scenic roadways that are out of character with the landscape characteristics of the view. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.14.1a through c would ensure that County designated scenic ridgelines and roadways retain their existing visual character, and that views and the visual character of the County are not substantially affected).

Daytime Glare and Nighttime Lighting

Implementation of the General Plan Update may introduce new sources of daytime glare and may change nighttime lighting and illumination levels. This impact was identified as significant and mitigable for Alternatives A, B and C.

Alternative E would result in the greatest impact (of the alternatives under consideration) given its land use plan, roadway improvements in the southern portion of the County as well as along SR 29 (between St. Helena and Calistoga), the growth effects of extending sewer and water service around the City of Napa and the allowance of vineyard development on slopes up to 35% without requiring a use permit (i.e., vineyard development scenario 4). However, this alternative's impact would still be considered **significant and mitigable** (with implementation of mitigation measures MM 4.14.2a through d would address glare and nighttime lighting impacts).

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. State CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. Alternatives considered here include the three equal-weight alternatives and the two comparative alternatives.

Table 6.0-2 provides a summary of the potential impacts of the alternatives evaluated in this section, as compared with the potential impacts of Alternative A, B, and C which were evaluated in Sections 4.1 through 4.14. These alternatives are ranked from 1 (greatest impact) to 5 (least impact)

Based upon the evaluation described in this section, the Alternative D (Resource Preservation Alternative) would be the environmentally superior alternative.

6.0 PROJECT ALTERNATIVES

**TABLE 6.0-2
SUMMARY COMPARISON OF ALTERNATIVES**

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<i>Agriculture</i>						
Conversion of Agricultural Lands to Non-Agricultural Uses (Impact 4.1.1)		Significant and Mitigable				
Rank		4	3	2	5	1
Loss of County Designated Agricultural Lands (Impact 4.1.2)		Less Than Significant	Less Than Significant	Significant and Unavoidable	Less Than Significant	Significant and Unavoidable
Rank		4	4	3	5	2
Agricultural/Urban Interface Conflicts (Impact 4.1.3)		Less Than Significant				
Rank		4	4	3	5	2
Conflict with Zoning and Williamson Act Contracts (Impact 4.1.4)		Significant and Unavoidable				
Rank		4	3	2	5	1
<i>Land Use</i>						
Division of Established Communities and Land Use Conflicts (Impact 4.2.1)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable
Rank		5	4	4	5	4

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Conflicts with Relevant Land Use Plans, Policies or Regulations (Impact 4.2.2)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable
Rank		5	4	4	5	4
Population/Housing/Employment						
Population, Housing and Employment Increases (Impact 4.3.1)		Significant and Unavoidable				
Rank		4	3	1	5	2
Jobs Housing Balance (Impact 4.3.2)		Significant and Unavoidable	Less Than Significant	Less Than Significant	Significant and Unavoidable	Less Than Significant
Rank		1	3	5	2	4
Displacement of Substantial Number of Persons or Housing (Impact 4.3.3)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Transportation						
Travel Demand (Impact 4.4.1)		Significant and Unavoidable				
Rank		3	4	2	5	3
Roadway Safety and Emergency Access (Impact 4.4.2)		Significant and Mitigable				
Rank		4	3	3	5	3

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Conflicts with Existing Alternative Transportation Policies and Programs (Impact 4.4.3)		Significant and Mitigable				
Rank		4	3	3	5	3
Create Additional Demand for Parking Facilities (Impact 4.4.4)		Significant and Mitigable				
Rank		n/a	n/a	n/a	n/a	n/a
Biological Resources						
Loss of Habitat Special-Status Plant and Animal Species (Impact 4.5.1)		Significant and Mitigable				
Rank		4	3	2	5	1
Loss of Sensitive Biotic Communities (Impact 4.5.2)		Significant and Unavoidable				
Rank		4	3	2	5	1
Loss of Wildlife Movement and Plant Dispersal Opportunities (Impact 4.5.3)		Significant and Mitigable				
Rank		4	3	2	5	1

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Conflicts with Biological Resource Plans, Ordinances or Policies (Impact 4.5.4)		Significant and Mitigable				
Rank		4	3	2	5	1
Fisheries						
Sedimentation Impacts to Fisheries (Impact 4.6.1)		Significant and Mitigable				
Rank		4	3	2	5	1
Other Water Quality Impacts to Fisheries (Impact 4.6.2)		Significant and Mitigable				
Rank		4	3	2	5	1
Hydrologic Alteration Impacts to Fisheries (Impact 4.6.3)		Significant and Mitigable				
Rank		4	3	2	5	1
Groundwater Interactions with Surface Waters (Impact 4.6.4)		Significant and Mitigable				
Rank		4	3	2	5	1
Direct Impacts to Habitat (Impact 4.6.5)		Significant and Mitigable				
Rank		4	3	2	5	1

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Interfere Substantially with Movement or Migratory Corridors (Impact 4.6.6)		Significant and Mitigable				
Rank		4	3	2	5	1
Noise						
Noise and Land Use Compatibility (Impact 4.7.1)		Significant and Mitigable				
Rank		4	3	3	5	3
New Development Exposure to Ground borne Vibration (Impact 4.7.2)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable
Rank		5	4	4	5	4
Project Generated Traffic Noise Increases (Impact 4.7.3)		Significant and Unavoidable				
Rank		4	3	2	5	1
Roadway Improvement Impacts to Noise-Sensitive Uses (Impact 4.7.4)		Less Than Significant	Significant and Unavoidable	Significant and Unavoidable	Less Than Significant	Significant and Unavoidable
Rank		5	4	4	5	4
Project Generated Non-Transportation Noise Sources (Impact 4.7.5)		Less Than Significant				

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rank		n/a	n/a	n/a	n/a	n/a
Project Generated Construction Noise (Impact 4.7.6)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Noise and Land Use Compatibility (Aircraft) (Impact 4.7.7)		Significant and Mitigable				
Rank		n/a	n/a	n/a	n/a	n/a
<i>Air Quality</i>						
Consistency with Air Quality Regulations (Impact 4.8.1)		Significant and Unavoidable				
Rank		4	3	1	5	2
Conflicts with Particulate Matter Attainment Efforts (Impact 4.8.2)		Significant and Unavoidable				
Rank		4	3	1	5	2
Grading and Temporary Construction (Impact 4.8.3)		Significant and Mitigable				
Rank		4	3	2	5	1
Odors (Impact 4.8.4)		Significant and Mitigable				
Rank		n/a	n/a	n/a	n/a	n/a

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Exposure to Air Toxic Contaminants (Impact 4.8.5)		Less Than Significant	Significant and Unavoidable	Significant and Unavoidable	Less Than Significant	Significant and Unavoidable
Rank		5	4	4	5	4
Carbon Monoxide Concentrations along Roadways (Impact 4.8.6)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Potential Increase in Greenhouse Gas Emissions (Impact 4.8.7)		Significant and Unavoidable				
Rank		4	3	1	5	2
Human Health/Risk of Upset						
Routine Transport of Hazardous Materials (Impact 4.9.1)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Release and Exposure to Hazardous Materials (Impact 4.9.2)		Significant and Mitigable				
Rank		4	3	2	5	1
Airport Hazards (Impact 4.9.3)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable
Rank		5	4	4	5	4

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Interference with an Adopted Emergency Response or Evacuation Plan (Impact 4.9.4)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable
Rank		5	4	4	5	4
Wildland Fire (Impact 4.9.5)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Geology and Soils						
Seismic Ground Shaking (Impact 4.10.1)		Significant and Unavoidable				
Rank		4	3	1	5	2
Seismic Related Ground Failure (Impact 4.10.2)		Significant and Unavoidable				
Rank		4	3	2	5	1
Tsunamis and Seiches (Impact 4.10.3)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Landslides (Impact 4.10.4)		Significant and Unavoidable				
Rank		4	3	2	5	1
Subsidence and Settling (Impact 4.10.5)		Significant and Unavoidable				
Rank		4	3	3	5	3

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Expansive Soils (Impact 4.10.6)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Septic System Operation (Impact 4.10.7)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Mineral Resources (Impact 4.10.8)		Less Than Significant				
Rank		n/a	n/a	n/a	n/a	n/a
Hydrology and Water Quality						
Non-Point Source Pollution from Urban Runoff (Impact 4.11.1)		Significant and Mitigable				
Rank		4	3	2	5	2
Construction-Related Soil Erosion and Sedimentation (Impact 4.11.2)		Significant and Mitigable				
Rank		4	3	2	5	1
Agricultural and Resource Uses (Impact 4.11.3)		Significant and Mitigable				
Rank		4	3	2	5	1
Impacts Associated with Ministerial Process (Impact 4.11.4)		n/a	Significant and Mitigable	Significant and Mitigable	n/a	Significant and Mitigable

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rank		n/a	5	5	n/a	4
Groundwater Level and Decline and Overdraft (Impact 4.11.5)		Significant and Unavoidable				
Rank		4	3	2	5	2
Well Competition and Adverse Well Interference (Impact 4.11.6)		Significant and Mitigable				
Rank		n/a	n/a	n/a	n/a	n/a
Changes to Drainage Patterns Leading to Increased Runoff and Streambank Erosion (Impact 4.11.7)		Significant and Mitigable				
Rank		4	3	2	5	1
Changes to Drainage Patterns Leading to Increased Runoff and Hillside Erosion (Impact 4.11.8)		Significant and Mitigable				
Rank		4	3	2	5	1
Increased Flood Risk from Drainage System Alteration (4.11.9)		Significant and Mitigable				
Rank		4	3	2	5	2
100-Year Flood Hazard Areas (Impact 4.11.10)		Less Than Significant				

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rank		n/a	n/a	n/a	n/a	n/a
New Vineyard Development and 100-Year Flooding (Impact 4.11.11)		Significant and Mitigable				
Rank		n/a	n/a	n/a	n/a	n/a
Cultural and Paleontological Resources						
Archaeological (Prehistoric Resources and Historic Resources), Human Remains and Paleontological Resources (Impact 4.12.1)		Significant and Mitigable				
Rank		4	3	2	5	1
Historic Architectural Resources (Impact 4.12.2)		Significant and Unavoidable				
Rank		4	3	2	5	1
Public Services and Utilities						
Fire Protection and Emergency Medical Services (Impact 4.13.1.1)		Significant and Mitigable				
Rank		4	3	2	5	2
Law Enforcement Services and Standards (Impact 4.13.2.1)		Less Than Significant	Significant and Mitigable	Significant and Mitigable	Less Than Significant	Significant and Mitigable

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rank		4	3	1	5	2
Water Supply Impacts (Impact 4.13.3.1)		Significant and Unavoidable				
Rank		4	3	2	5	1
Sewer Treatment and Conveyance (Impact 4.13.4.1)		Significant and Mitigable				
Rank		4	3	1	5	2
Solid Waste Service (Impact 4.13.5.1)		Less Than Significant				
Rank		4	3	1	5	2
Public School Facilities (Impact 4.13.6.1)		Less Than Significant				
Rank		4	3	1	5	2
Provision of Electric and Natural Gas Resources (Impact 4.13.7.1)		Less Than Significant				
Rank		4	3	1	5	2
Social Services (Impact 4.13.8.1)		Less Than Significant				
Rank		4	3	1	5	2
Increased Demand for Park and Recreational Facilities (Impact 4.13.9.1)		Significant and Mitigable				

6.0 PROJECT ALTERNATIVES

Environmental Impacts	Level of Significance	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Rank		4	3	1	5	2
Visual Resources/Light and Glare						
Degradation of the Quality of Visual Character Associated with Designated Scenic Resources within the County (Impact 4.14.1)		Significant and Mitigable				
Rank		4	3	2	5	1
Daytime Glare and Nighttime Lighting (Impact 4.14.2)		Significant and Mitigable				
Rank		4	3	2	5	1

Notes:

1. Ranking is based on a 1 to 5 scale, with "1" as having the greatest impact and "5" as having the least impact. Under some impacts, alternatives have been identified having the same ranking as a result of similar impact levels.
2. "n/a" is used where an impact is not associated with a particular impact or where no discernible difference in the impacts was identified.
3. As noted at the beginning of this section, the No Project Alternative would result in the same impacts as Alternative A. Thus, this alternative was not shown in this table.