

This section summarizes the cumulative impacts associated with the proposed project using the same environmental issue areas as Section 4.0. Cumulative impacts are the result of combining the potential effects of the project (i.e. the General Plan Update) with other planned and foreseeable development projects.

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to State CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130). As defined in State CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

...the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

In addition, Section 15130(b) identifies that the following elements are necessary for an adequate cumulative analysis:

- 1) *Either:*
 - (A) *A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,*
 - (B) *A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.*
- 2) *A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;*
- 3) *A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and*
- 4) *A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.*

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

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The current analysis uses the projections-based approach referenced in Section 15130(b)(1)(B) by incorporating local and regional projections of employment and population for future year 2030. These population and employment projections are in turn used to derive projections of future traffic volumes, air emissions, and traffic noise. The current analysis also incorporates County-wide projections of vineyard development by year 2030. Where relevant, this section also contains lists of projects as called for in Section 15130(b)(1)(A). These lists are provided to amplify information subsumed in the local/regional projections, and to complement those projections with information regarding planned or ongoing infrastructure, regulatory, or other changes that are not always captured by the projections method.

5.2 CUMULATIVE SETTING

As further described below, the general cumulative setting considered as part of the cumulative impact analysis is based on the existing conditions as documented in the BDR and in this DEIR. The cumulative context includes land use and traffic projections (regional and local), approved and known pending plans and projects (city and County plans/projects), vineyard expansion projections, recreation and open space projects, transportation and other infrastructure projects, flood control projects, as well as relevant regional planning and regulatory changes (e.g. TMDL and Basin Plan amendments).

LAND USE PLANNING AND PROJECTED GROWTH

Table 5.0-1 provides a summary of regional growth projections that encompasses areas that would also be directly and indirectly impacted by implementation of the proposed General Plan Update under all alternatives (based on the traffic analysis population/housing/employment provided in Sections 4.3 and 4.4 of this DEIR). As noted in Section 4.2 (Land Use), the cities of American Canyon and St. Helena as well as the counties of Sonoma, Lake and Yolo are currently updating their general plans that would likely further refine the form and extent of growth anticipated to occur in the region by the year 2030. It should also be noted that continued vineyard and agricultural development is anticipated to occur in the neighboring counties (e.g., Sonoma).

In addition to the city/county general plan projects identified above, a Resource Management Plan (and EIS) has been prepared for lands managed by the Bureau of Land Management, and the Bureau of Reclamation recently adopted a Record of Decision (ROD) related to facilities at Lake Berryessa. The Napa County Transportation Planning Agency (NCTPA) had undertaken an update of its Strategic Transportation Plan, and has completed its work on a South Napa County SR 29 Corridor Study.

**TABLE 5.0-1
REGIONAL GROWTH PROJECTIONS FOR THE YEAR 2030**

| Jurisdiction | 2030 Population | 2030 Jobs |
|--------------------------|-----------------|-----------|
| Bay Area Counties | | |
| Alameda | 1,884,600 | 1,088,870 |
| Contra Costa | 1,244,800 | 543,860 |
| Marin | 284,000 | 173,580 |
| San Francisco | 924,600 | 829,090 |
| San Mateo | 848,400 | 507,090 |

| Jurisdiction | 2030 Population | 2030 Jobs |
|---------------------------|-----------------|-----------|
| Santa Clara | 2,267,100 | 1,339,970 |
| Solano | 581,800 | 217,910 |
| Sonoma | 558,400 | 328,310 |
| Napa County Cities | | |
| American Canyon | 20,100 | 7,770 |
| Calistoga | 5,400 | 3,140 |
| Napa | 87,200 | 44,360 |
| St. Helena | 6,300 | 6,180 |
| Yountville | 3,600 | 2,980 |

Source: ABAG Projections 2005 (For projections associated with the unincorporated County, please see Section 3.0, Project Description.)

URBAN AND RURAL DEVELOPMENT PROJECTS

The cumulative land use projections for this DEIR are presented for each alternative in Section 3.0 (Project Description) and Section 4.3 (Population and Housing). These projections assume the following approved and pending development projects identified at the time of the preparation of this DEIR (see **Table 5.0-2**). It should be noted that **Table 5.0-2** is noted intended to be an all-inclusive list of all development activities in the County. In addition to the projects identified in **Table 5.0-2**, two major projects have been the subject of initial discussions – one on the Napa Pipe property south of the City of Napa, and one on Pacific Union College (PUC) property in Angwin. Neither project has been defined in any detail, however both are expected to include multi-family housing, with an emphasis on “workforce” housing. The owner of the Napa Pipe site has proposed up to 3,200 dwelling units on about 100 acres, plus additional commercial and industrial uses on the remaining 50 acres. The PUC has proposed a much smaller number of dwelling units, with limited neighborhood-serving commercial uses adjacent to the campus. Both proposals would require rezoning following detailed environmental review.

In regards to the incorporated cities, two applications for annexation to the City of Napa have been submitted by the Ghisletta family. The first annexation of 12,096 square feet (2093 Penny Lane) was approved by LAFCo in February 2006. The second annexation was for 141.9 acres (four parcels at 2003 Golden Gate) was submitted in August 2006, and will required detailed planning (pre-zoning, etc.) prior to approval by the City and LAFCo. The City of American Canyon is undertaking a land use planning process (specific plans) for the Oat Hill area and Town Center, as well as development of 429 residential units, a public safety facility, business park, and warehouse. Currently under construction in American Canyon are 959 residential units, a mixed-use commercial center, the Gaia Hotel, the Canyon Corners commercial center and two office developments. The City of Napa is currently planning for a new Soscol Gateway Redevelopment area, and recently approved a master plan for the Gasser parcel.

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**TABLE 5.0-2
APPROVED OR PENDING DEVELOPMENT PROJECTS**

| Project Name | Size | Units | Location | ITE Land Use Category |
|--|----------|-------------|---|--|
| 1. Canyon Rock Apts/The Village at Vintage Ranch Townhomes | 164 | DU | NE Corner of Hwy 29 and American Canyon Road | 220 - Apartment |
| 2. Vineyard Crossings | 145 | DU | NW corner of Summerwood Drive & Golden Brook Lane | 220 - Apartment |
| 3. Napa Junction Apts. | 216 | DU | American Canyon | 220 - Apartment |
| 4. Vintage Ranch | 743 | DU | American Canyon Road east of Highway 29 | 210 – Single-Family Detached |
| 5. American Business Park | 6.8 | AC | 5381 Broadway and off Green Island Road east of RR tracks | 750 – Office Park |
| 6. Napa Junction Mixed Use | 40 | AC | Highway 29 south of Napa Junction Road | 220 – Apartments 820 – Shopping Center |
| 7. Gaia Hotel | 133 | Rooms | East side of Highway 29 between Antonina and Frisbee Lane | 310 - Hotel |
| 8. Canyon Corners | 48.12 | KSF | 100 W. American Canyon Road | 820 – Shopping Center |
| 9. Oat Hill Master Plan | 363.7 | AC | West of Highway 29, south of Green Island Industrial Park, east of the Napa River and north of Eucalyptus Drive | 210, 220, 820, |
| 10. Town Center Specific Plan | 100 | AC | South Napa County Road and Flosden Road | 210, 220, 820 |
| 11. Stanly Ranch Vineyards | 18 | DU | Stanly Lane, City of Napa | 210 – Single-Family Detached |
| 12. Gasser Master Plan | 80 | AC | Soscol Road and Imola Road, City of Napa | Mixed Uses |
| 13. Coffield Avenue GPA | 18 | DU | 523, 527, 543 Coffield, City of Napa | 210 – Single-Family Detached |
| 14. West Park GPA | NA | NA | 2254 West Park, City of Napa | NA |
| 15. Juanita St. Annexation | NA | NA | 2093 Penny Ln, City of Napa | NA |
| 16. Carmel Dr. Subdivision | 44 | DU | Carmel Drive, City of Napa | NA |
| 17. Grandview GPA and Rezone | 22 35 | DU Units | 1915 Main Street, St. Helena | 210- Single-Family Detached 310 – Hotel |

Source: Cities of American Canyon, Yountville, Napa, St. Helena and Calistoga Planning Departments 2006
1 DU = Dwelling Units; KSF = 1,000 ft²; 2 Notation: ITE Land Use Code – ITE Land Use Category

VINEYARD DEVELOPMENT PROJECTIONS

The County is processing erosion control plans for vineyard development projects, with approximately 45,000 acres of vineyards in the County in the year 2005. As further described in Section 4.11 (Hydrology and Water Quality) and in **Appendix H**, the County is projecting 10,000 to 12,500 or 15,000 acres (depending on the EIR alternative selected) of new vineyard development in the County by the year 2030.

OTHER ACTIVITIES IN THE COUNTY INCLUDED AS PART OF THE CUMULATIVE SETTING**Parks and Recreation**

In November 2006, the voters of Napa County approved the formation of the Napa County Regional Park and Open Space District (the District). The District is governed by a five member Board of Directors, and will be developing specific plans for public open spaces within the County. With limited financial resources, the District is expected to focus their initial efforts on partnerships with other agencies and organizations, and low-cost strategies to increase public access to existing public open spaces. No specific proposals were identified at the time of the preparation of this DEIR.

Flood Control Projects

In 1996, the Community Coalition, a group consisting of the Friends of the Napa River, Napa Valley Economic Development Corporation, Napa County Flood Control District and the U.S. Army Corps of Engineers invited residents, businesses, local government, and numerous resource agencies, together and established goals of 100-year flood protection, an environmentally restored, "living" Napa River, enhanced opportunities for economic development, a local financing plan that the community could support, and a plan that addressed the entire watershed Countywide. The Napa River Flood Protection Project has completed the following components on the Napa River:

- South Wetlands Opportunity Area (wetlands restoration)
- Terracing and East Side Trail (from Kennedy Park to Hospital Creek)
- Railroad Realignment (Kennedy Park to 8th Street)
- Maxwell Bridge Replacement
- Terracing (from Hospital Creek to 3rd Street)
- Third Street Bridge
- First Street Bridge over Napa Creek and Bypass
- Soscol Avenue-Oxbow Bypass Bridge

In addition to the City of Napa improvements, the City of St. Helena has also developed a flood protection project for the Napa River called the St. Helena Comprehensive Flood Protection Project. Project components include development of a floodplain terrace along the southern bank of the river to provide a wider area for passage of floodwaters, shoreline restoration (approximately 600 feet), construction of new levee (along and east of the alignment of Adams Street), removal of approximately 17 mobile homes, construction of a new setback floodwall as well as bank stabilization for the Vineyard Valley Mobile Home Park, storm water management features (detention basin, pumping facility, and storm drains), vegetation management, utility relocations/modifications and adaptive management. Current activities on this project have land acquisition activities, engineering and design as well as efforts to receive state and federal funding.

Timber Harvesting

Opportunities for timber harvest activities would continue in the County through the year 2030. Timber harvesting within Napa County is governed by the California Department of Forestry and Fire Protection (CDF) Forest Practice Program. The program adheres to the California Forest Practice Rules, Title 14, California Code of Regulations, Chapters 4, 4.5 and 10. As described in 14 CCR 895.1 of the rules, "commercial timber species" are all of the species listed in Group A and those in Group B that are found on lands where the species in Group A are now growing

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naturally or have grown naturally in the recorded past for the Northern and Coast Forest Districts. The County currently has approximately 40,500 acres of potential timberland. This acreage is determined based on the criteria of species composition and does not include other factors, such as soil type, that can influence CDF's determination (and ultimate jurisdiction) of what is or is not commercial timberland. **Table 4.1-9** below lists potential timberland by timber group and evaluation area.

TMDLs and Basin Plan Amendments for the Napa River

High concentrations of fecal bacteria have been observed in the Napa River since the 1960s. Consequently, the SFRWQCB identified the Napa River as impaired by excessive fecal bacteria according to Section 303(d) of the Clean Water Act. The following sources have been associated as contributors of significant pathogen loads in the watershed: faulty on-site sewage treatment systems (septic systems); failing sanitary sewer lines; municipal runoff; cattle grazing; confined animal facilities, municipal wastewater treatment facilities and wildlife. The general trend in past monitoring efforts indicates that urban runoff and failing septic systems are the primary pathogen source during wet weather months, while failing sanitary sewer lines and septic tanks may constitute the primary pathogen sources during the dry season. The San Francisco Bay RWQCB adopted an amendment to the Water Quality Plan San Francisco Bay Basin (Basin Plan) that established the total maximum daily load (TMDL) and numeric targets for pathogens as well as an implementation plan that calls for continued implementation of County Code requirements regarding sewage systems.

In addition to this amendment, San Francisco Bay Regional Water Quality Control Board has also adopted an amendment to the Water Quality Plan San Francisco Bay Basin (Basin Plan) that established the TMDL for the Napa River calling for substantial reductions in the amount of fine sediment input from the watershed to improve the water quality and beneficial use of the river, including the spawning and rearing habitat for salmonid species. TMDL implementation measures include continued implementation applicable NPDES permits (which includes continued implementation of the Napa County Stormwater Management and Discharge Control Ordinance) as well as continued implementation of the Napa County Conservation Regulations (County Code Chapter 18.108).

The San Francisco Bay RWQCB is in the process of developing a TMDL for nutrients in the Napa River basin. The process to date has involved use of a watershed-based scientific approach and study to assess the nature and degree of impairment and evaluate nutrient inputs and sources. The proposed TMDL would include amendment to the Basin Plan. The "Conceptual Approach for Developing Nutrient TMDLs for San Francisco Bay Area Waterbodies" staff report from the RWQCB specifically notes setbacks and management of fertilizers as likely nutrient management measures for the future TMDL, which are currently addressed through implementation of the Napa County Conservation Regulations.

5.3 CUMULATIVE IMPACTS ANALYSIS

Identified below is a compilation of the cumulative impacts that would result from the implementation of the project and future development in the vicinity. As described above, cumulative impacts are two or more effects that, when combined, are considerable or compound other environmental effects.

AGRICULTURE**Cumulative Setting**

In addition to the cumulative setting conditions described above, existing and projected future urban development throughout the state is expected to further contribute to the loss of important farmlands.

Cumulative Impacts and Mitigation Measures

Impact: Implementation of the proposed General Plan Update under all alternatives along with potential development in the incorporated cities would not result in a cumulatively considerable contribution to the conversion of the loss of Prime Farmland, Unique Farmland, Farmland of Statewide Importance to non-agricultural uses, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency.

Impact 4.1.1 in Section 4.1 (Agriculture) identifies project-specific impacts associated with the potential conservation of farmland in the County in the context of recent trends (see **Table 4.1-8**). In this instance "project specific" impacts mean those that would occur under the General Plan Update, and are thus the total associated with cumulative projections of population/employment growth and vineyard development.

Farmlands of concern under CEQA (Prime Farmland, Unique Farmland and Farmland of Statewide Importance) have increased in acreage over the last 20 years from 42,458 acres (8.4% of total lands in the County) in 1984 to 60,051 acres (11.87% of total lands in the County) in 2004. In comparison, urban development in the County (including incorporated and unincorporated areas) has increased from 17,450 acres (3.45% of total lands in the County) to 22,245 acres (4.40% of total lands in the County) in 2004. Based on review of California Department of Conservation farmland conservation reports and associated mapping and vineyard development mapping, this increase in higher classifications of farmland has been as a result of vineyard development converting lower classifications of farmland.

As noted in Section 3.0 (Project Description), the County anticipates 10,000 to 12,500 acres of new vineyard development by year 2030 that could occur under each of the three alternatives. Since there is no way to predict precisely where new vineyard development will occur, the County has developed several representative distributions, as explained in **Appendix H**. When these hypothetical scenarios are compared to the state classified farmlands shown in **Figure 4.1-2**, they demonstrate the likelihood that the trend of increased acreage of higher farmland classifications in the County would continue through year 2030. As noted in Section 4.1, potential conversions of classified farmlands to non-agricultural uses when viewed in this context are considered potentially significant and mitigable. As shown 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 Alternatives A, B and C. Thus, the proposed General Plan Update's contribution to a potential cumulative loss of agricultural land **less than considerable**.

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LAND USE

Cumulative Setting

The setting for this cumulative analysis includes local and regional projections which are ample in scope to subsume existing, proposed, planned and approved projects as well as expected growth under general plans, community plans and specific plans in the cities contained within the County and surrounding counties (see discussion above under sub-section 5.2; also Section 3.0 [Project Description] and Section 4.3 [Population and Housing]).

Cumulative Impacts and Mitigation Measures

Impact **Implementation of the proposed Napa County General Plan Update under all alternatives would not conflict or contribute to a conflict with applicable land use plans, policies, or regulations of agencies with jurisdiction over parts of the County that provide for environmental protection, with the exception of Alternatives B and C associated with Napa County Airport Land Use Compatibility Plan. The project's contribution to this cumulatively significant impact can be mitigated to less than considerable.**

Land use plans with jurisdiction in the unincorporated area of the County consist of the Napa County Airport Industrial Area Specific Plan, and the Napa County Airport Land Use Compatibility Plan. The general plans of the five incorporated cities within the County govern land use and development decisions within these jurisdictions, and the Lake Berryessa Visitor Services Plan, the Bay Plan and the BLM Resource Management Plan apply to areas under the jurisdiction of BOR, BCDC, and BLM respectively. Regulations include those adopted by local, regional, state, and federal agencies for lands or resources under their jurisdiction. As noted under Impact 4.2.1, the proposed Napa County General Plan Update and the associated three alternatives (A, B and C) would not substantially alter the existing land use pattern currently set forth in the existing Napa County General Plan Land Use Map except where Alternatives B and C propose changes to the Napa Pipe and Boca/Pacific Coast sites, and where Alternative C proposes changes to the so called Angwin "urban bubble," establishment of a new "bubble" in Pope Valley, and establishment of an RUL for the City of American Canyon. No conflicts between the General Plan Update and other applicable plans have been identified, except that under Alternatives B and C, development could occur that is inconsistent with the Airport Land Use Compatibility Plan for Napa County Airport. When combined with possible conflicts arising from land use decisions within the City of American Canyon (e.g. possible decisions associated with the pending Oat Hill project), this potential conflict would be considered **cumulatively considerable**. It should be noted that the RUL proposed for American Canyon in Alternative C is not consistent with the Urban Limit Line (ULL) shown in American Canyon's current general plan. As described in Section 4.2 (Land Use), this conflict is not considered significant because it is the County's General Plan, and not the City's, that applies to the unincorporated area, and the proposed RUL is consistent with the formally adopted (by LAFCO) Sphere of Influence (SOI) for the City.

Mitigation Measures

As noted under Impact 4.2.2, potential conflicts associated with Alternatives B and C and the Napa County Airport Land Use Compatibility Plan would be mitigated through the implementation of the Mitigation Measure MM 4.2.2 that would require future development at the Napa Pipe site to be designed consistent with the safety provisions of the Plan.

Implementation of this mitigation measure would fully mitigate the project's contribution to this cumulative impact, making it **less than considerable**.

POPULATION/HOUSING/EMPLOYMENT

Cumulative Setting

The cumulative setting for population/housing/employment in Napa County includes 793 square miles, which includes the unincorporated County and the cities of Calistoga, St. Helena, Napa and American Canyon and the Town of Yountville. With regard to the transportation and air quality impacts of the jobs/housing imbalance, the cumulative setting also includes the region and the adjacent counties (see **Table 5.0-1**).

The potential environmental impacts of population and employment growth in the region are assessed via local and regional projections, as explained in Section 4.3 (Population and Housing). These impacts have the potential to be both direct and indirect. Projected development in the region would directly change the intensity of land uses in the region and increase housing, employment, shopping and recreational opportunities. Indirectly, changes in population, housing and employment can affect many environmental disciplines. These are considered in Sections 4.1 through 4.14 of this Draft EIR and generally consist of the following:

- *Aesthetics* – Further conversion of rural, agricultural, and natural open space landscape characteristics to urban conditions.
- *Air Quality* – Increases in air pollutant emissions potentially conflicting with air quality attainment efforts under state and federal Clean Air Acts. Also increased potential for the exposure to toxic air contaminants.
- *Biological Resources* – Loss of special-status plant and animal species habitats, degradation of habitats and loss of special-status species.
- *Cultural Resources* – Impacts to known and unknown archaeological and historic resources in the region.
- *Geology and Soils* – Additional exposure to seismic and geologic hazards.
- *Hydrology and Water Quality* – Additional sources of point and non-point sources of surface water pollutants into region waterways. Further demand on groundwater resources and potential overdraft issues.
- *Noise* – Increased transportation noise levels from increased traffic volumes.
- *Public Services and Utilities* – Increased demand for the development and expansion of public services and facilities and associated environmental issues.
- *Traffic* – Increased traffic volumes on the region's highways and regional roadways resulting in deficient levels of service of operation.

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Cumulative Impacts

Impact Land uses and growth under the proposed General Plan EIR under all alternatives would include increases to population, housing and employment in the County that would be in addition with anticipated growth of the cities of Napa County and region, as well as cities in other adjacent counties. This impact would be cumulatively considerable.

As identified under Impact 4.3.1, the proposed Napa County General Plan Update would largely retain existing land use patterns. However, as shown in **Table 4.3-13**, each of the three alternatives would result in varied developed conditions by the year 2030. All of the alternatives would result in significant and unavoidable impacts because the estimate of employment, population, and housing units is substantially greater than the regional projections. As further noted under Impact 4.3.2, growth under Alternative A would further imbalance the ratio of jobs and housing in the County (see **Table 4.3-14**). This growth (in addition to growth projected for County cities and the region) would result in physical effects to the environment. The projected increase in Napa County with respect to population and housing units would result in direct and indirect environmental effects such as noise, demand for services and utilities, traffic, and air quality. These impacts could also occur in adjacent counties as well as the region as a result of the need for housing opportunities not provided in the County.

Mitigation Measures

Implementation of mitigation measures MM 4.3.1 (amend Growth Management System to develop specific criteria allowing the County Board of Supervisors to allow the 1% standard to be exceeded) and MM 4.3.2 (improve the balance of jobs to housing in the unincorporated areas of the County by requiring new employment-generating development either to produce on- or off-site housing adequate to meet the demand for Napa County housing associated with the new employment) would assist in mitigating this cumulative impact, they would not fully mitigate the effect of this growth. Thus, this impact is considered **significant and unavoidable**, and the **project's contributions to the cumulative effects of population and housing would be considered considerable**.

TRANSPORTATION AND CIRCULATION

Cumulative Setting

The Napa/Solano County Travel Demand Model includes the nine San Francisco Bay Area counties and several other jurisdictions beyond the Bay Area including Sacramento County, Lake County and portions of the San Joaquin Valley. Within these areas year 2030 conditions include both the growth in land use and proposed roadway improvements. The model was used to project cumulative directional traffic volumes for the PM peak hour under adjusted population and employment projections developed to represent the General Plan Update alternatives. See Section 4.4 (Transportation) for a description of projected travel patterns in 2030 and resulting impacts on the traffic network.

Cumulative Impacts and Mitigation Measures

Impact Land uses and growth under the proposed General Plan Update under all alternatives as well as potential development in the incorporated areas would contribute to significant impacts on local roadways and state highways under cumulative conditions. This impact would be cumulatively considerable.

Cumulative traffic impacts on roadways within and immediately leaving the County for year 2030 are analyzed in detail under Impact 4.4.1 in Section 4.4 (Transportation). As noted in this analysis, year 2030 conditions include the consideration of anticipated growth of the cities in the County as well as growth in the region and regional traffic volumes. The impact analysis identifies that up to 42 roadway segments (under Alternative C) would be significantly impacted under year 2030 conditions with the proposed General Plan Update. This would include roadway segments that are within the cities of American Canyon, Napa, St. Helena, Calistoga, the Town of Yountville as well as Yolo, Solano, Lake and Sonoma counties.

In addition to the impacts identified under Impact 4.4.1, the amount of traffic between Napa County and the region increases substantially above existing levels (under all of the land use alternatives/roadway scenarios). The growth in Napa County-generated regional trips ranges from approximately 10% under Alternative A to 24% under Alternative C. In addition to the growth in trips between the region and Napa County, there is a similar growth in regional trips passing through Napa County. All of these increases in traffic will add to congestion along the regional highway system due to internal county trips.

To understand the magnitude of traffic growth attributable to Napa County-generated trips and other (external-to-external) trips, five roadway segments outside of Napa County were selected for analysis. These are:

- SR 37 west of Mare Island
- SR 37 between SR 29 and Fairgrounds Drive
- I-80 between American Canyon Road and I-680
- I-80 at the Carquinez Bridge
- SR 128 north of the Town of Calistoga

Table 5.0-3 shows the relative amount of traffic being added to these roadway segments during the PM peak hour by traffic generated within or attracted to Napa County under Alternatives B and C (given that these alternatives generate the highest vehicle miles traveled, though Alternative A would have similar increases in traffic). As shown in this table, Napa County generated traffic contribution to the regional roadway network would range from 2% to 49%.

**TABLE 5.0-3
CUMULATIVE TRAFFIC CONTRIBUTION BY NAPA COUNTY ON SELECTED REGIONAL FACILITIES**

| Location | Direction | Capacity Vehicles per hour | 2030 Alternative B | | | |
|---------------------------|-----------|----------------------------|--------------------|--------------|--------------|----------------------|
| | | | V/C | Total Volume | Napa Traffic | Percent Napa Traffic |
| | | | 2.34 | 3583 | 226 | 6% |
| SR-37 West of Vallejo | EB | 1530 | 1.53 | 2343 | 279 | 12% |
| SR-128 North of Calistoga | SB | 950 | 1.05 | 998 | 494 | 49% |
| SR-128 North of Calistoga | NB | 950 | 0.74 | 698 | 165 | 24% |
| I-80 south of Fairfield | SB | 8000 | 0.93 | 7460 | 246 | 3% |
| I-80 south of Fairfield | NB | 8000 | 1.23 | 9801 | 216 | 2% |
| I-80 Carquinez Bridge | SB | 7950 | 2.01 | 15969 | 852 | 5% |
| I-80 Carquinez Bridge | NB | 8000 | 1.10 | 8779 | 1117 | 13% |

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| Location | Direction | Capacity Vehicles per hour | 2030 Alternative B | | | |
|---------------------------------|-----------|----------------------------|--------------------|--------------|--------------|----------------------|
| | | | V/C | Total Volume | Napa Traffic | Percent Napa Traffic |
| SR-37 EB between SR-29 and I-80 | EB | 4000 | 1.09 | 4351 | 195 | 4% |
| SR-37 EB between SR-29 and I-81 | WB | 4000 | 0.70 | 2782 | 378 | 14% |
| SR-37 West of Vallejo | WB | 1530 | 2.57 | 3925 | 237 | 6% |
| SR-37 West of Vallejo | EB | 1530 | 1.51 | 2316 | 374 | 16% |
| SR-128 North of Calistoga | SB | 950 | 1.18 | 1124 | 502 | 45% |
| SR-128 North of Calistoga | NB | 950 | 0.44 | 419 | 118 | 28% |
| I-80 south of Fairfield | SB | 8000 | 0.95 | 7599 | 293 | 4% |
| I-80 south of Fairfield | NB | 8000 | 1.23 | 9849 | 263 | 3% |
| I-80 Carquinez Bridge | SB | 7950 | 2.02 | 16056 | 807 | 5% |
| I-80 Carquinez Bridge | NB | 8000 | 1.19 | 9530 | 1364 | 14% |
| SR-37 EB between SR-29 and I-80 | EB | 4000 | 1.08 | 4318 | 336 | 8% |
| SR-37 EB between SR-29 and I-81 | WB | 4000 | 0.72 | 2877 | 419 | 15% |

Mitigation Measure

Implementation of mitigation measures MM 4.4.1a through j identified in Section 4.4 (Transportation) would assist in reducing the project's contribution to this impact, but they would not fully mitigate the effect of the projected growth in regional traffic. Thus, this impact is considered **significant and unavoidable** and the **project's contribution would be considered considerable**.

BIOLOGICAL RESOURCES

Cumulative Setting

In addition to the cumulative setting conditions described above in sub-section 5.2 above, the cumulative setting for biological resources also considers land use activities and development state-wide that are adversely impacting special-status plant and animal species beyond Napa County (e.g., potential impacts to special-status species associated with coniferous forest habitats, oak woodland habitats, grassland habitats, serpentine soil conditions and wetlands that occur in several areas of the state).

Cumulative Impacts and Mitigation Measures

Impact Land uses and growth under the proposed General Plan under all alternatives along with other land use activities in the region and state-wide would substantially contribute to cumulative impacts associated with significant effects to special-status plant and wildlife species, sensitive natural communities, and movement corridors. The impact to sensitive biotic communities would be cumulatively considerable.

As identified under Impacts 4.5.1, 4.5.2 and 4.5.3, the County contains habitat conditions that support several special-status plant and animal species that occur throughout the County. While **Table 4.5-3** identifies relatively minor (as compared to total habitat County-wide) acreage losses of biotic communities associated with rural and urban land uses from implementation of the alternatives, vineyard development anticipated by the year 2030 could result in conversion of biotic communities in the County that provide habitat to special-status plant and animals as well as sensitive biotic communities (see **Tables 4.5-4** through **4.5-6**). As specifically noted (and further discussed under Impact 4.5.2), vineyard development scenarios 2 through 4 could result in the conversion generally ranging from 8% to 35% 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). **Table 4.5-7** presents recorded locations of special status species within potential development areas and within areas encompassed by the modeled vineyard scenarios. In addition, future land use activities under the General Plan Update could restrict or block wildlife movement.

These impacts associated with the General Plan Update would be in addition to the environmental effects associated with other land use activities and development (e.g., other agricultural activities beyond vineyard development, timber harvesting, natural resource extraction activities [mineral resources], recreation development and activities) in the County, region and state-wide (noted above in sub-section 5.2). For example, the potential loss of special-status plant species associated with vernal pools and serpentine soils from development has been identified as issues in the Sacramento region (as identified in the City of Rancho Cordova General Plan EIR) and in El Dorado County (as identified in the El Dorado County General Plan Update EIR). Similar habitat conditions also occur in the adjacent counties (e.g., Sonoma, Lake, Solano, and Yolo) that would be impacted from land use development, timber harvesting, anticipated vineyard expansion and other associated agricultural activities in those jurisdictions. Also, designated core areas (associated with recovery plans for listed species) for California red-legged frog and Tiburon paintbrush are located within the City of American Canyon and its environs.

Mitigation Measures

Implementation of mitigation measures MM 4.5.1a through c, MM 4.5.2a through c, MM 4.5.3a through c, MM 4.6.1b and MM 4.6.5a through c and MM 4.11.4 as well as implementation of the Napa County Conservation Regulations would fully address project-specific impacts to special-status species, and habitat and wildlife movement on a project by project basis by retaining habitat and connectivity as well as providing replacement habitat. However, loss of sensitive biotic communities and oak woodland anticipated by the year 2030 as a result of urban, rural and vineyard development in Napa County cannot be fully mitigated. Thus, this impact is considered significant **and unavoidable**, and the **project's contribution is considered considerable**.

FISHERIES

Cumulative Setting

In addition to the cumulative setting conditions described above in sub-section 5.2 above, the cumulative setting for fisheries also considers land use activities and development state-wide that are adversely impacting special-status fish species beyond Napa County.

5.0 CUMULATIVE IMPACTS

Cumulative Impacts and Mitigation Measures

Impact Land uses and growth under the proposed General Plan under all alternatives along with other land use activities in the region and state-wide would substantially contribute to cumulative impacts special-status fish species. This impact would be cumulatively considerable.

As identified in Section 4.6 (Fisheries), implementation of the proposed General Plan Update would contribute to cumulative impacts to special-status fish species (see **Table 4.6-5**) in the following manner:

- Water quality impacts associated with sedimentation, nutrients, pesticides and other pollutants (see Impacts 4.6.1 and 4.6.2).
- Alteration of hydrologic conditions from changes in peak flows and groundwater discharges to surface waters (see Impacts 4.6.3 and 4.6.4).
- Direct impacts to habitat and blockage of movement (see impacts 4.6.5 and 4.6.6).

Other land use activities and development in the County as well as water supply activities and management of other waterways in the state (e.g., maintenance of flows in rivers through releases in the state's dams, surface water diversion projects and pumping of water from the delta) would also contribute to cumulative impacts on special-status fish species. Given the scale of fishery impacts in the state, this impact is considered cumulatively considerable.

Mitigation Measures

Implementation of mitigation measures, MM 4.6.1a and b, MM 4.6.5a through c, MM 4.6.6, MM 4.11.2a and b, MM 4.11.3b, MM 4.11.4 and MM 4.11.5e as well as implementation of the Napa County Conservation Regulations and associated effectiveness of BMPs (see **Appendix G and I**) would mitigate the project's contributions to impacts to special-status fisheries by fully mitigating water quality impacts, avoiding increases in peak flow conditions, avoiding and fully mitigating habitat impacts associated with implementation of the General Plan Update. Thus, implementation of these mitigation measures would reduce the project's contribution to the cumulative impact to **less than considerable**.

NOISE

Cumulative Setting

Cumulative noise impacts would occur with the combined contribution of the development of the General Plan, build out of the incorporated areas within the County, and the development of surrounding areas in neighboring counties.

Cumulative Impacts and Mitigation Measures

Impact Land uses and growth under the proposed General Plan under all alternatives along with potential development of the incorporated areas and neighboring counties could result in increased traffic noise along local and regional roadways and highways. This impact would be cumulatively considerable.

Table 4.7-12, identifies traffic noise impacts associated with the General Plan Update under all alternatives, which includes anticipated year 2030 traffic from the cities as well as regional traffic from the other area counties. The anticipated traffic noise increase would range from 1 dB to 13 dB on County roadways over existing conditions, with up to 30 roadway segments significantly impacted (under Alternative C). Increased traffic noise levels associated with this alternative would exceed current County General Plan and Noise Ordinance standards and/or result in a substantial increase existing noise traffic noise levels (as noted in shaded cells of **Table 4.7-12**). In addition to traffic noise impacts to the unincorporated portion of the County, this increase in traffic noise would also be significant on roadways within and adjacent to the cities of American Canyon, St. Helena, Calistoga, Napa and the Town of Yountville as well as Yolo, Solano and Sonoma counties (associated with increase traffic noise on State Routes 29, 121, and 128) (under both roadway improvement assumptions).

Mitigation Measures

Implementation of mitigation measures MM 4.7.1a and MM 4.7.4 would assist in reducing traffic noise exposure impacts. However, mitigation in all circumstances may not be reasonable or feasible due to considerations such as roadway access, cost, terrain and the needs of local property owner. Also, the County does not have the ability to require, improve or construct traffic noise attenuation features outside of the unincorporated area. Placement of noise barriers (e.g., walls and berming) may be considered inconsistent with the fundamental principles of the General Plan Update of retaining the current character of the County and thus considered infeasible. Therefore, despite mitigation measures described in this section, potential traffic noise increases would be considered **significant and unavoidable**, and the **project's contribution would be considered considerable**.

AIR QUALITY

Cumulative Setting

The cumulative setting for air quality includes the setting described in sub-section 5.2 above as well as the San Francisco Bay Area Air Basin, which consists of the nine San Francisco Bay Area counties. In addition, the cumulative setting includes consideration of global issues associated greenhouse gas emissions and climate change.

Cumulative Impacts and Mitigation Measures

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with potential development of the incorporated urban areas could conflict with existing regional efforts to achieve attainment of ambient air quality standards for ozone and particulate matter. This impact would be cumulatively considerable.**

As shown in **Table 4.8-6**, the population and vehicle miles traveled increase in the unincorporated County under the alternatives for the proposed General Plan Update would exceed MTC forecasts associated with attainment efforts for ozone. **Table 4.8-8** illustrates the average annual and average winter day PM₁₀ wood smoke emissions during the winter season by alternative. The increases in PM₁₀ wood smoke emissions identified in **Table 4.8-8** is equivalent to approximately 15 to 20 percent of the current daily PM₁₀ emissions in the County, as averaged on an annual basis (Napa County 2005). These additional emissions would contribute to conflicts with air quality attainment efforts for the air basin.

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Mitigation Measures

Implementation of the mitigation measures 4.8.1a through d, MM 4.8.2 and MM 4.4.1a through j would provide reduction in air pollutant emissions as well as provide transportation control measures generally consistent with the BAAQMD CAP. However, these mitigation measures are not expected to completely offset anticipated increases in air pollutant emissions from growth under the General Plan Update. Thus, this impact is considered **significant and unavoidable** and the **project's contribution is considered considerable**.

Global Warming Effects

Impact Land uses and growth under the proposed General Plan Update under all alternatives along with potential development of the incorporated urban areas would contribute to an increase in Greenhouse Gas (GHG) emissions from vehicle transportation, building energy use and possibly agricultural operations and may contribute to increases in atmospheric GHG concentrations. Higher concentrations of GHGs have been linked to the phenomenon of climate change. This impact would be cumulatively considerable.

As identified under Impact 4.8.7, the major sources of GHG emissions in Napa County are vehicle transportation, building energy use, and to a lesser extent agricultural operations (including livestock grazing and emissions produced during wine-making). Projected population growth, energy use, and traffic congestion projected with implementation of the General Plan Update would lead to 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.

Mitigation Measures

While implementation of Mitigation Measure MM 4.8.7 and mitigation measures MM 4.8.1a through d would assist in reducing these emissions, there are no feasible mitigation measures to fully offset existing and future GHG emissions. Thus, this impact would be considered **significant and unavoidable**, and the **project's contribution would be considered considerable**.

HUMAN HEALTH/RISK OF UPSET

Cumulative Setting

The cumulative hazards area for the Napa County would consist of all existing or potential hazard sites within Napa County, or within surrounding areas that could potentially affect the county, or be affected by hazards generated from within the County. However, hazards tend to be associated with site-specific conditions rather than connection with other cumulative conditions

Cumulative Impacts and Mitigation Measures

Impact Land uses and growth under the proposed General Plan Update under all alternatives in addition to other reasonably foreseeable projects would not result in cumulative hazardous material and human health risk impacts. This impact would be less than cumulatively considerable.

As documented in Section 4.9 (Human Health/Risk of Upset), potential exposure or generation of hazardous conditions in the County are site-specific rather than associated with the combination of other hazards in the region to result in a significant effect. Implementation of mitigation measures MM 4.2.2, MM 4.9.2 and MM 4.9.4 would address site-specific hazards associated with potential conflicts with Napa County Airport operations, site-specific hazards and emergency access. This impact would be **less than cumulatively considerable**.

GEOLOGY AND SOILS

Cumulative Setting

Site-specific topography, soil conditions, and surrounding development generally determine geological, soil, and mineral resource related impacts, which generally are not considered cumulative in nature. However, exposure to additional residents and structures to geologic and seismic hazards in the region would be considered a cumulative impact.

Cumulative Impacts and Mitigation Measures

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with development of the existing urban areas in the cities of the County and the region could result in cumulative impacts to geologic and seismic hazards by increasing population in a seismically active area. This impact would be cumulatively considerable.**

As identified under Impacts 4.10.1 and 4.10.2, implementation of the proposed General Plan Update would contribute to cumulative geologic/seismic hazards as a result of continued growth and development in a region that is seismically active and is anticipated to experience a magnitude 6.7 or larger earthquake by the year 2032. Impacts 4.10.1 and 4.10.2 identify geologic hazards associated with seismic events (e.g., ground shaking and ground failure).

Mitigation Measure

Implementation of mitigation measures MM 4.10.1, MM 4.10.2 and MM 4.10.4a through c in addition to the provisions of UBC and CBC and County Code Chapter 18.88 would reduce the potential hazards associated with seismic ground shaking and ground failure. During small and moderate seismic events the impacts seismic ground shaking would be reduced to a less than significant impact for new development consistent with the General Plan Update. These measures would require specific standards for the location and development of residential and other uses that are in close proximity to known active seismic faults. Implementation of these measures would not completely eliminate impacts resulting from seismic ground shaking from severe seismic events. In the event of severe seismic activity impacts could be significant in some locations. As a result, this impact would remain **significant and unavoidable** and the **project's contribution would be considered considerable**.

HYDROLOGY/WATER QUALITY

Cumulative Setting

The cumulative setting consists of the Napa River watershed, Putah Creek/Lake Berryessa watershed, and Suisun Creek watershed and includes anticipated land use activities and development described in sub-section 5.2 above as well as continued wastewater effluent

5.0 CUMULATIVE IMPACTS

discharges and the expansion of recycled water use currently being investigated by the Napa Sanitation District.

Cumulative Impacts and Mitigation Measures

Cumulative Water Quality Impacts

Impact Land uses and growth under the proposed General Plan Update under all alternatives in combination with current land uses in the unincorporated area of the County and land use activities and development of the cities and other agencies in the County could introduce additional non-point source pollutants to surface waters. This impact would be cumulatively considerable.

As described under Impacts 4.11.1 through 4.11.3 and Impacts 4.11.7 and 4.11.8, subsequent development and land uses under the proposed General Plan Update could substantially contribute to water quality degradation from construction, operation and alteration of peak drainage flows, in addition to potential sources of pollution from the cities and other agencies in the watersheds. **Appendix H** contains projections of sediment and nutrient loads that could occur as a result of 10,000 to 12,500 acres (15,000 acres anticipated under Alternative E) of new vineyard development projected by the year 2030 in a variety of development scenarios. However, as noted in Section 4.11 and supported by the technical information in **Appendix I**, the implementation of the Napa County Conservation Regulations and the associated BMPs that are developed from compliance with these regulations have been demonstrated to be effective in maintaining water quality. For example, water quality modeling conducted (see **Appendix H**) did note that increases in crop cover ("C" factors) as a BMP results in reductions in the extent of soil loss increases. Under a "C" factor of 0.088, future vineyard development would not exceed current soil loss projections in the Valley Floor evaluation area (under scenario 2), MST and American Canyon evaluation areas (all scenarios), and the Suisun evaluation area (under scenario 2). Under a "C" factor of 0.046, future vineyard development would not exceed current soil loss projections in the Valley Floor evaluation area (under scenario 2), Carneros, MST and American Canyon evaluation areas (all scenarios), and the Suisun evaluation area (under scenario 3). **Appendix I** also contains documentation and supporting evidence demonstrating that BMPs and associated land use practices used in the County are effective in fully mitigating nutrient, pesticides and other related pollutant sources. As noted above under sub-section 5.2 and in Section 4.11 (Hydrology and Water Quality), the adopted Basin Plan amendment and Napa River sediment TMDL implementation measures include continued implementation applicable NPDES permits (which includes continued implementation of the Napa County Stormwater Management and Discharge Control Ordinance) as well as continued implementation of the Napa County Conservation Regulations (County Code Chapter 18.108).

In addition, Ordinance No. 1240 (Stormwater Management and Discharge Control) protects 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 rural and urban 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. The use of such BMPs for residential, commercial and recreational development have been demonstrated to effectively protect surface water quality. For example, the

Lahontan development in Eastern Placer County (which consists of 436 single-family residential units, 18-hole golf course and supporting commercial uses and other active recreational features) has been designed with several similar BMP features used in Napa County (e.g., energy dissipaters and vegetated buffer strips) that have been determined effective in avoiding water quality impacts (nitrogen, nitrite/nitrate, sulfate, total dissolved solids, chloride, iron, and phosphorus) based on over 6 years of water quality sampling (Placer County, 2004).

Mitigation Measures

Implementation of mitigation measures MM 4.11.2a and b, MM 4.11.3a and b, and MM 4.11.4 would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions when scour events occur, no increase in sediment over existing conditions and demonstration that BMPs would ensure protection of current water quality in compliance with applicable Basin Plans and TMDLs (as demonstrated by technical evidence provided in **Appendix I** and summarized in Section 4.11 [Hydrology and Water Quality]). Thus, implementation of these mitigation measures and continued implementation of the Napa County Conservation Regulations and Ordinance No. 1240 (Stormwater Management and Discharge Control) would fully mitigate the General Plan Update's contribution to **less than cumulatively considerable**.

Cumulative Groundwater Impacts

Impact **Land uses and growth under the proposed General Plan Update under all alternatives in combination with current land uses in the unincorporated area of the County and land use activities and development of the cities and other agencies in the County would result in increased demand on groundwater supplies, leading to groundwater decline and overdraft, which could contribute to cumulative water supply conditions. This impact would be cumulatively considerable.**

As identified under Impact 4.11.5 and 4.13.3.1, the County is projecting that future growth projected in the Napa Valley is anticipated to exceed current and projected water supply sources (including groundwater associated with the Main Basin) under year 2020 and 2050 and would further exacerbate current groundwater conditions for MST and Carneros basins. These projections include consideration of all unincorporated water demands (urban, rural and agricultural) as well incorporated (city) demands for years 2020 and 2050 (see **Appendix J**).

Mitigation Measures

Implementation of mitigation measures MM 4.11.4 MM 4.11.5a through e, and MM 4.13.3.1a and b and County Code provisions under chapters 13.04, 13.08, 13.12 and 13.15 would require verification of adequate water supply, protection of groundwater resources and recharge areas, utilization of conservation measures and use of recycled water would reduce water supply impacts. As noted above, the County (cities and unincorporated area) is projecting water supply shortfalls in year 2020 and 2050 for the Napa Valley. Several projects are under consideration for mitigating these shortfalls. However, not all of these projects have been approved or fully developed to ensure meeting the anticipated shortfalls in years 2020 and 2050. Thus, this impact is considered **significant and unavoidable and the project's contribution would be considered considerable**.

5.0 CUMULATIVE IMPACTS

Cumulative Flood Hazards

Impact Land uses and growth under the proposed General Plan Update under all alternatives in combination with current land uses in the unincorporated area of the County and land use activities and development of the cities and other agencies in the County would increase impervious surfaces and alter drainage conditions and rates in the County, which could contribute to cumulative flood conditions in the Napa, Berryessa and Suisun watersheds. This impact would be cumulatively considerable.

Land uses and development consistent with the proposed General Plan Update in combination with current conditions and future development of the cities and other agencies in the County could increase runoff and result in adverse modifications to local and regional hydrology. As identified under Impact 4.11.11, hydrologic modeling conducted for anticipated vineyard development by the year 2030 identified two locations on the Napa River, and at Canon Creek's junction with Bell Creek, on the valley floor where flows and water surface elevation could increase without the provision of attenuation of peak flows.

As noted above under sub-section 5.2 (Cumulative Setting), the cities of St. Helena and Napa are currently working on flood control improvements for the Napa River. However, additional increases in peak flows (without mitigation) could diminish the ability of these improvements to accommodate peak flows.

Mitigation Measures

Implementation of the Mitigation Measure 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 Mitigation Measure MM 4.11.3a and MM 4.11.4a would ensure no increase scour events along waterways by requiring the retention of pre-development peak flow conditions. Thus, implementation of these mitigation measures would fully mitigate the General Plan Update's contribution to this impact to **less than cumulatively considerable**.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Cumulative Setting

The setting for this cumulative analysis includes existing, proposed, planned and approved projects as well as growth planned under general plans, community plans and specific plans in the cities contained within the County and surrounding counties (see discussion above under sub-section 5.2).

Impact Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the region could result in the disturbance of cultural and paleontological resources (i.e., prehistoric sites, historic structures, and isolated artifacts and features) and human remains. This impact would be cumulatively considerable.

As noted under Impact 4.12.1 and 4.12.2, the proposed General Plan Update could contribute to the cumulative impacts to significant cultural and paleontological resources impacts (archaeological resources, human remains, historic architectural resources, and fossils) in

combination with other land use activities and development by cities and other agencies in the County as well as in the region.

Mitigation Measures

Implementation of the mitigation measures MM 4.12.1 and MM 4.12.2 would identify significant cultural, paleontological and historic architectural resources prior to implementation of a project and would afford and opportunity to take appropriate action to protect a resource, which would reduce the project's contribution to this cumulative impact. However, it cannot be determined at this time whether all significant historic resources and structures could be feasibly avoided or fully mitigated in all circumstances. Therefore, the project's potential contribution to the cumulative loss of historic architectural resources is considered **significant and unavoidable** and the **project's contribution would be considered considerable**.

PUBLIC SERVICES AND UTILITIES

Cumulative Setting – Fire Protection and Emergency Medical Response

The cumulative setting for fire protection includes the service area boundaries of the CDF, which includes Napa County and extends into adjoining Lake, Yolo, Solano, Sonoma, and Lake counties. The cumulative fire setting also includes the service area boundaries of the NCFD, which encompasses approximately 728 acres in the unincorporated portions of the County, as well as the service area boundaries of the County's five local volunteer fire departments, which extends to small areas outside of Napa County. The cumulative setting for emergency medical response includes the service area boundaries of Angwin Community Ambulance, Piners Ambulance, REACH, and the California Highway Patrol Air Operation Unit (CHPAOU), which is consistent with the service areas of these providers presented in **Table 4.13.1-1**. This analysis addresses impacts in the cumulative service area for the Angwin Community Ambulance services, which encompasses 250 square miles in the northeastern portion of the County in addition to the communities of Pope Valley and the Lake Berryessa area. The cumulative setting for the remaining providers (e.g., Piners Ambulance, REACH, and the CHPAOU) includes all of Napa County, all of Northern California and the 7,000 square mile area under the jurisdiction of the CHP, respectively.

Cumulative Impacts and Mitigation Measures– Fire Protection and Emergency Medical Response

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the region would increase the demand for fire protection and emergency response services. This would be a cumulatively considerable impact.**

Subsequent development and growth under the proposed General Plan Update would contribute to an increase the demand of fire protection and emergency medical services in the County (in combination with growth of the cities and adjoining counties). Fire protection and emergency response services are funded through a combination of property taxes, developer fees, and impact fees. These funding mechanisms would provide sufficient resources to serve the projected needs of the CDF, NCFD, ACFPD, the five local fire departments and the County's emergency response providers under cumulative conditions and through the horizon of the General Plan Update.

The location, size of facility and potential environmental impacts resulting for the provision of new fire protection and emergency medical facilities and equipment cannot be determined at

5.0 CUMULATIVE IMPACTS

this time. The physical impacts resulting from the construction of new fire protection and emergency medical related facilities are generally short-term and temporary air quality and noise impacts. Other adverse impacts (i.e., water quality, erosion, biological resources, etc.) may result, depending on site-specific conditions and proximity to waterways and other important resource areas. For purposes of the programmatic environmental analysis provided in this DEIR, it is assumed that such facilities would be placed within existing designated rural and urban areas of the County.

Mitigation Measures

Implementation of mitigation measures MM 4.13.1.1a through c and MM 4.9.4 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. Thus, implementation of these mitigation measures would reduce the project's contribution to **less than cumulatively considerable**.

Cumulative Setting – Law Enforcement

The cumulative setting for law enforcement includes the incorporated and unincorporated portions of Napa County, which is the service area of the Napa County Sheriff's Department and the County's various local police departments. The development associated with the General Plan Update would result in population increases and contribute to an incremental cumulative increase in demand for law enforcement and related facilities.

Cumulative Impacts and Mitigation Measures– Law Enforcement

Impact **Land uses and growth under the proposed General Plan Update along with foreseeable land use activities and development in the County would require additional law enforcement services and related facilities to meet the increased demand under cumulative conditions. This impact would be cumulatively considerable (Alternatives B and C only).**

As noted under Impact 4.13.2.1, all law enforcement services in the County are funded through the County's General Fund, individual city general funds, mutual aid agreements and other sources (e.g., grants), which are generally anticipated to be adequate funding mechanism to meet the NCSA and local police department's projected staffing and service needs. However, it should be noted that funding levels of law enforcement services is ultimately decided by the Napa County Board of Supervisors and the local city and town councils for each incorporated city. Future growth within the County may require the construction or expansion of law enforcement facilities. Typical environmental effects regarding the construction and operation of a law enforcement facility involve issues with noise (intermittent noise associated with sirens), air quality (during the construction of the facility), biological resources (depending on location), cultural resources (depending on location), and public utilities (demand for electric, water and wastewater service). For purposes of the programmatic environmental analysis provided in this DEIR, it is assumed that such facilities would be placed within existing developed and urban areas of the County.

Subsequent development under Alternatives B and C would further contribute to the cumulative demand for law enforcement services due to changes to the land use map could result in concentrations of population necessitating additional services.

Mitigation Measures

Implementation of mitigation measures MM 4.12.2.1a and b would mitigate Alternative B and C contribution to cumulative law enforcement impacts by ensuring that subsequent development under the proposed General Plan Update would not adversely impact public safety services. Thus, this impact would be **less than cumulatively considerable**.

Cumulative Setting – Water Supply

The cumulative setting consists of the Napa River watershed, Putah Creek/Lake Berryessa watershed, and Suisun Creek watershed and includes anticipated land use activities and development in the unincorporated area and cities as described in sub-section 5.2 above as well as the expansion of recycled water use currently being investigated by the Napa Sanitation District.

Cumulative Impacts and Mitigation Measures– Water Supply

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase the demand for additional sources of potable and irrigation water as well as additional or expanded treatment and distribution facilities to meet projected demands at year 2030 and at year 2050. This impact would be cumulatively considerable.**

As addressed in detail under Impact 4.13.3.1 and in **Appendix J**, the County is projecting that future growth projected in the Napa Valley is anticipated to exceed current and projected water supply sources for the cities and County (including surface water sources and groundwater associated with the Main Basin) under year 2020 and 2050 and would further exacerbate current groundwater conditions for MST and Carneros basins. These projections include consideration of all unincorporated water demands (urban, rural and agricultural) as well incorporated (city) demands for years 2020 and 2050 (see **Appendix J**).

The cities within the County are currently considering several measures to improve future water supply conditions, which are summarized below (the reader is referred to pages 11 through 14 Technical Memorandum No. 7 of the 2050 Napa Valley Water Resources Study [**Appendix J**]). Potential environmental effects of obtaining this additional water supply are identified in **Table 4.13.3-38**.

Mitigation Measures

Implementation of mitigation measures MM 4.13.3.1a and b, MM 4.11.4a and MM 4.11.5a through e and County Code provisions under chapters 13.04, 13.08, 13.12 and 13.15 would require verification of adequate water supply, protection of groundwater resources and recharge areas, utilization of conservation measures and use of recycled water would reduce water supply impacts. As noted under Impact 4.13.3.1, the County (cities and unincorporated area) is projecting water supply shortfalls in year 2020 and 2050 for the Napa Valley. Several projects are under consideration for mitigating these shortfalls. However, not all of these projects have been approved or fully developed to ensure meeting the anticipated shortfalls in years 2020 and 2050. Thus, this impact is considered **significant and unavoidable** and the **project's contribution is considerable**.

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Cumulative Setting – Sewer Service

The cumulative setting for wastewater services encompasses all of Napa County (including anticipated growth identified in sub-section 5.2 above) and the service area boundaries of those providers identified in **Table 4.13.4-1**.

Cumulative Impacts and Mitigation Measures– Sewer Service

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase in wastewater flows and require additional infrastructure and treatment capacity under cumulative conditions. This impact would be cumulatively considerable.**

As of 2005, the County's service providers had adequate capacity to meet the existing demand; however, there could be a shortage in some provider's treatment or conveyance capacity if development were to expand into the unincorporated portions of the County. To ensure efficient operations, various providers are planning and currently undertaking various modification and rehabilitation efforts to improve system efficiency and reduce potentially physical impacts (see **Table 4.13.4-1**) as well as maintain compliance with wastewater discharge requirements of the RWQCB and state. As indicated in **Table 4.13.4-1**, the NSD plans to expand its water reclamation program, improve existing reclaimed water storage facilities, replace or upgrade pump stations, and improve rehabilitate and expand existing conveyance lines. The LBRID is in the process of obtaining a permit to install an irrigation field and other modifications and improvements to existing infrastructure and the NBRID plans the replacement and /or the rehabilitation of existing monitoring well and sewer conveyance and transmission infrastructure. Both of these districts are considering the formation of assessment districts for the funding of needed infrastructure repairs. Additionally, the American Canyon Public Works Department is looking to implement cyclic valve operations on existing facilities and other modifications to improve the overall treatment and conveyance system, and is undertaking a review of their system capacity. These efforts are likely to give the various service providers adequate treatment and service capacity to meet the projected demands within their service area boundaries. Potential environmental effects associated with wastewater system improvements could include, but are not limited to, construction and operational air quality and noise effects, biological resource impacts, habitat and aquatic resources, geologic and hydrologic impacts from both construction and operation, hazards and growth inducement. These potential environmental effects would be addressed as part of consideration of those improvements by service providers.

As identified under Impact 4.13.4.1, implementation of the proposed General Plan Update would contribute 0.99 to 2.55 mgd in cumulative wastewater service demands (depending on the Alternative selected). This increase demand may be accommodated by public wastewater treatment systems and individual septic systems.

Mitigation Measures

Implementation of Mitigation Measure MM 4.13.4.1 and adherence to the existing County Code requirements and implementation of would ensure that the environmental effects of providing additional treatment capacity and conveyance facilities to accommodate the increase in demand associated with the General Plan Update would be fully mitigated. Thus, this impact would be mitigated to **less than cumulatively considerable**.

Cumulative Setting – Solid Waste

The cumulative setting and analysis for solid waste includes Napa County and affected transfer stations and landfills as well as growth anticipated in the County as identified in sub-section 5.2 above.

Cumulative Impacts and Mitigation Measures– Solid Waste

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase solid waste generation and the demand for related services. This impact would be less than cumulatively considerable.**

Solid waste providers in the County consist of UVDS, BGS, NRWS, NCRWS, and ACRD and the County is currently meeting the source reduction requirements of AB 939. These providers collect the County's solid waste from various transfer stations and ultimately dispose of it at the Keller Canyon landfill and the Clover Flat landfill. The capacity at each facility exceeds current and projected demand. As of January 2004, 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. Thus, the project's contribution to this impact would be **less than cumulatively considerable**.

Cumulative Setting – Public Schools

This cumulative analysis of public school and education impacts includes the service area of the County's five school districts (i.e., the NVUSD, SHUSD, CJUSD, HMESD, and the PVUESD) as well as anticipated growth in the County and cities identified in sub-section 5.2 above. This cumulative setting also includes the Fairfield-Suisun Unified School District due to the fact that there Napa County residents attending Rodriguez High School and Green Valley Middle School.

Cumulative Impacts and Mitigation Measures– Public Schools

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase the County's population and would require new schools to accommodate residential growth. This impact would be less than cumulatively considerable.**

Implementation of the General Plan Update (in combination with anticipated growth in the cities) would result in an incremental cumulative demand for schools and may require the construction of new schools and related facilities to provide additional capacity and accommodate current and future enrollment. Typical environmental effects as a result of the construction and operation of new school facilities include, air quality (during construction and operation), noise (during construction and operation), biological and cultural resources (depending on location), public services (electric, water and wastewater), and traffic (during construction and operation). Such school development would occur within the development areas evaluated in the technical analysis of this EIR. Because specific locations for public schools have not been identified, site-specific environmental impacts of constructing the

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facilities cannot be determined at this time. However, it is reasonable to assume that the construction of schools and related facilities would occur in areas designated for urban development or in immediate proximity where the environmental effects of generalized growth have been programmatically evaluated in this DEIR. Additionally, new public school facilities must undergo rigorous site-specific CEQA and California Board of Education evaluation prior to construction to identify and lessen environmental related impacts.

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. Thus, compliance with these provisions of the Government Code would ensure that the project's contribution to this impact would be **less than cumulatively considerable**.

Cumulative Setting – Electricity and Natural Gas

The cumulative setting for electricity and natural gas services encompass the service areas of the each particular service provider. The cumulative setting for electric service and natural gas also includes growth of the County and region (as identified under sub-section 5.2 above) as well as Northern California, which is currently experiencing a great amount of growth and a subsequent cumulative demand for these services and related infrastructure.

Cumulative Impacts and Mitigation Measures– Electricity and Natural Gas

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the region would increase energy use and the demand for electrical and natural gas facilities and related infrastructure. This impact would be less than cumulatively considerable.**

As identified under Impact 4.13.7.1, -the County's providers have sufficient electrical transmission capacity and natural gas resources to accommodate the demand associated the proposed General Plan Update through 2010 for each of the three alternatives. The latest California Independent System Operator (Cal-ISO) approved Grid Expansion Plan for PG&E's service territory, which identifies projects to increase the existing capacity, indicates that no new facilities are required over the next five years to accommodate the County's anticipated demand. However, additional electrical transmission capacity would be required to meet the County's demand between 2011 and 2015. Additional transmission capacity would be needed at the Tulocay Substation by 2015, which would accommodate the increased demand and capacity shortfall. To accommodate the projected demand, PG&E is currently working on the Tulocay 230/60 kV Transformer Project and the Pueblo Voltage Support Project. The Tulocay Transformer Project is anticipated for completion by 2007 and will include a redundant Tulocay transformer to improve reliability and reduce customer outages within the radial system. The Pueblo Voltage Support Project was completed in July 2005, which included the installation of an 8 MVA voltage device at the Pueblo Substation. The Pueblo Substation has adequate capacity to meet current demands; however, the voltage device will provide additional capacity and flexibility during emergency conditions (Napa County, BDR 2005). The environmental effects of obtaining more power, developing new power plants, or constructing

new electrical and natural gas transmission lines and generation infrastructure to accommodate future growth could include air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, soil related impacts, and human health and safety hazards, which would be evaluated in further detail for each specific energy-related project. This DEIR programmatically considers the environmental effects of potential infrastructure improvements within the County as part of overall growth anticipated by year 2030

Subsequent development under the proposed General Plan Update and within the cities 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. These new energy efficiency standards were developed in response to the state's energy crisis as well as AB 970 and SB 5X in regards to improving residential and nonresidential building energy efficiency, minimizing impacts to peak energy usage periods and to reduce impacts on overall state energy needs. In addition, the proposed General Plan Update would retain existing land use patterns of the County that emphasize the concentration of new urban and rural development into and adjacent to existing cities and unincorporated communities where services exist and thus reducing energy and resource usage from new growth (as opposed to substantial expansion of urban areas). However, it is acknowledged that vehicle miles traveled are anticipated to increase in the County by the year 2030 and that such growth (while efficient) would contribute to environmental effects including climate change. The reader is referred to the discussion above under "Air Quality" for further discussion regarding potential impacts associated with climate change.

Given the conditions identified above, the project's contribution to this impact is considered **less than cumulatively considerable**.

Cumulative Setting – Social Services

The cumulative setting and analysis for social services includes all of Napa County and the associated service providers identified in **Table 4.13.8-1** as well as growth anticipated in the County as identified in sub-section 5.2 above.

Cumulative Impacts and Mitigation Measures– Social Services

Impact **Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase the demand for the social services. This impact would be less than cumulatively considerable.**

Continued growth of the County under the General Plan Update as well as growth of the cities 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. Other improvements are administrative in nature and include, but are not limited to, establishing an Eligibility Program for the Calistoga School District, the creation of a supervisory position for the In-Home Services Department and the long-term state-wide effort to reform CPS over the next 5-10 years including focus on prevention and an outcome based system. Thus, no environmental effects are anticipated from cumulative demand for services. Given the conditions identified above, the project's contribution to this impact is considered **less than cumulatively considerable**.

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Cumulative Setting – Parks and Recreation

The cumulative setting and analysis for parks and recreation includes all of Napa County and includes consideration of growth anticipated in the County as identified in sub-section 5.2 above.

Cumulative Impacts and Mitigation Measures– Parks and Recreation

Impact Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would increase population that result in an increase in the demand for recreational opportunities and facilities. This impact would be cumulatively considerable.

As identified under Impact 4.13.9.1, approximately 80 percent of the County's total population lives in incorporated cities that maintain urban park facilities, while recreation opportunities in the unincorporated area of the County consists of largely outdoor passive recreation (e.g., hiking, picnicking, mountain biking, equestrian, wildlife viewing, camping and recreation opportunities at Lake Berryessa). There is currently 5,456 acres of dedicated open space areas that are open to public access within 15 minutes of the County's cities. In addition, the County currently has 76 miles of completed, maintained and publicly accessible non-motorized trails, 25 miles of public off-highway vehicle dirt roads and trails and proposals for nearly 200 miles of non-motorized trails (e.g., incomplete segments of the San Francisco Bay Trail and the Bay Ridge Trail). Growth under the proposed General Plan Update as well as growth of the County's cities would contribute substantially to an increase in the demand for recreation opportunities and facilities.

Mitigation Measures

Implementation of mitigation measures MM 4.13.9.1a through d would ensure that recreational facilities are provided to meet demand of growth under the proposed General Plan Update (including urban recreation needs associated with multi-family development under Alternatives B and C). Thus, implementation of these mitigation measures would mitigate the project's contribution to **less than cumulatively considerable**.

VISUAL RESOURCES/LIGHT AND GLARE

Cumulative Setting

The cumulative setting for visual resources consists of all of Napa County and includes consideration of growth anticipated in the County as identified in sub-section 5.2 above.

Cumulative Impacts and Mitigation Measures

Cumulative Impacts to Visual Resources

Impact Land uses and growth under the proposed General Plan Update under all alternatives along with foreseeable land use activities and development in the County would result in the further conversion of the County's rural landscape to residential, commercial, and other land uses, contributing to the alteration of the visual resources in the region. This impact would be cumulatively considerable.

As identified under Impact 4.14.1, Development projected under the proposed General Plan Update in combination with anticipated growth and development of the cities and other land use activities in the County 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. In addition to alteration of landscape characteristics, cumulative development conditions could also generate substantial sources of daytime glare and nighttime lighting.

Mitigation Measures

Implementation of mitigation measures 4.14.1a through f would ensure that land use activities under the proposed General Plan Update would avoid impacts to 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, while mitigation measures MM 4.14.2a through d would ensure that subsequent development under the General Plan Update would include design features to avoid and minimize nighttime lighting and daytime glare impacts. Thus, implementation of these mitigation measures would fully mitigate the project's contribution to this impact and would be **less than cumulatively considerable**.